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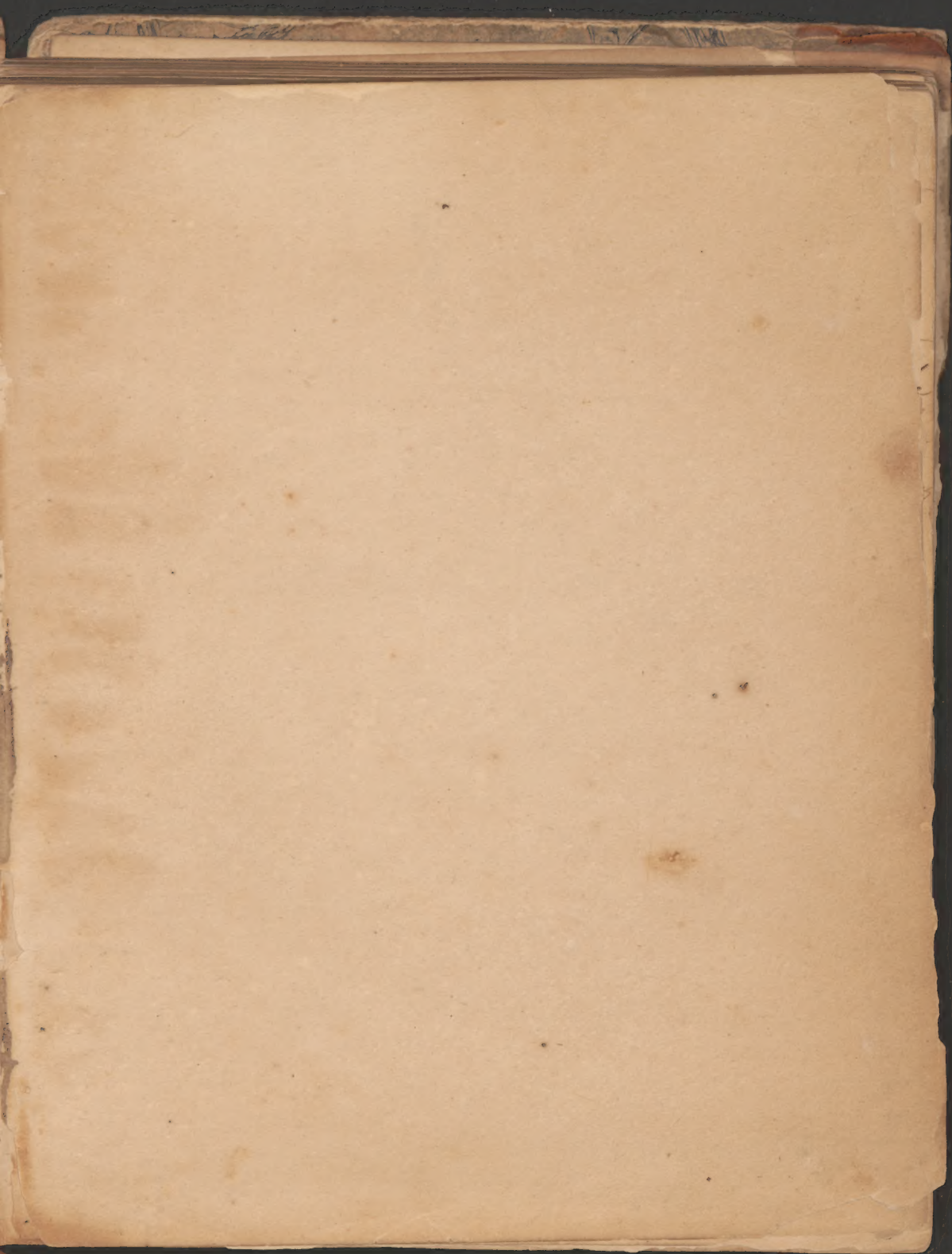
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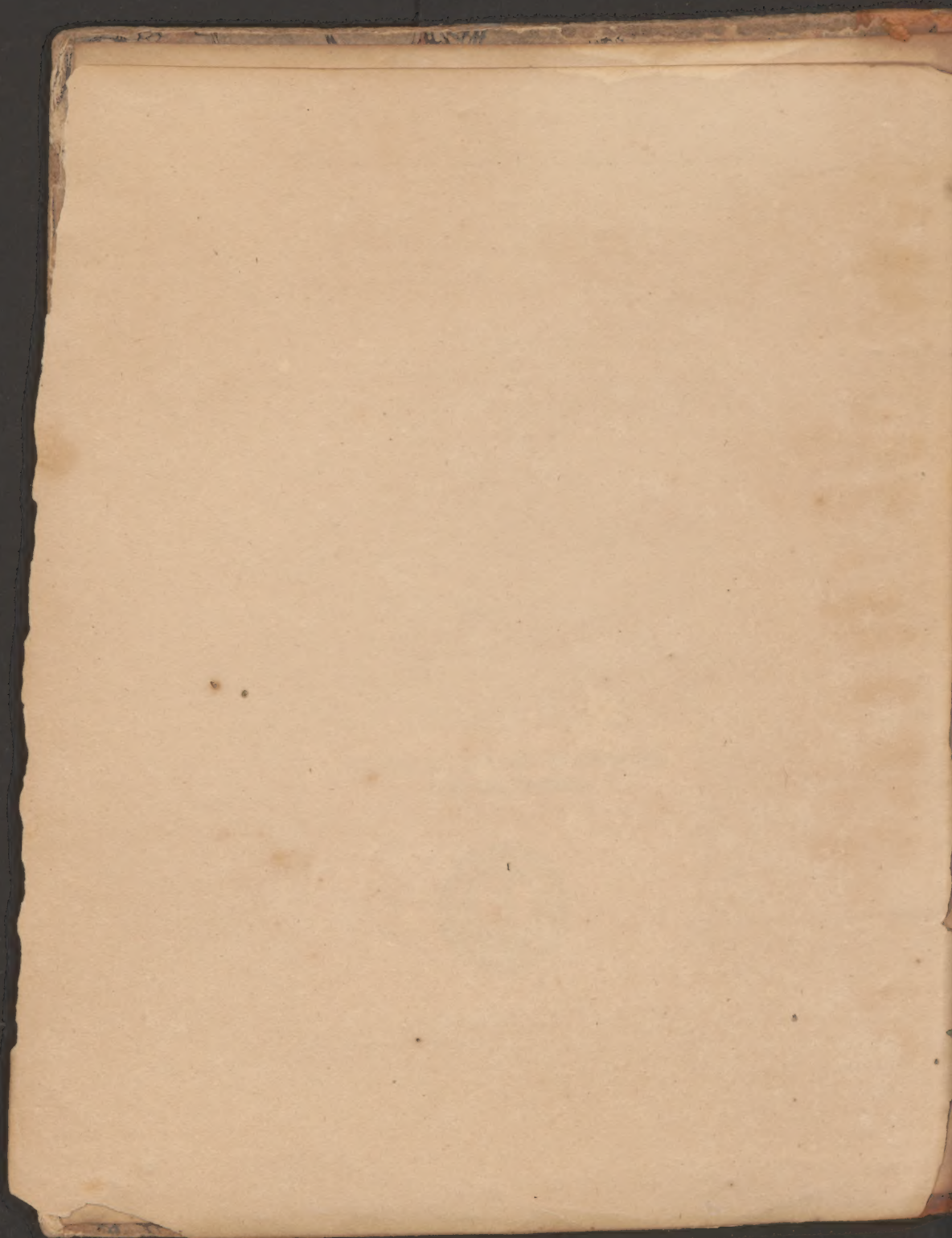
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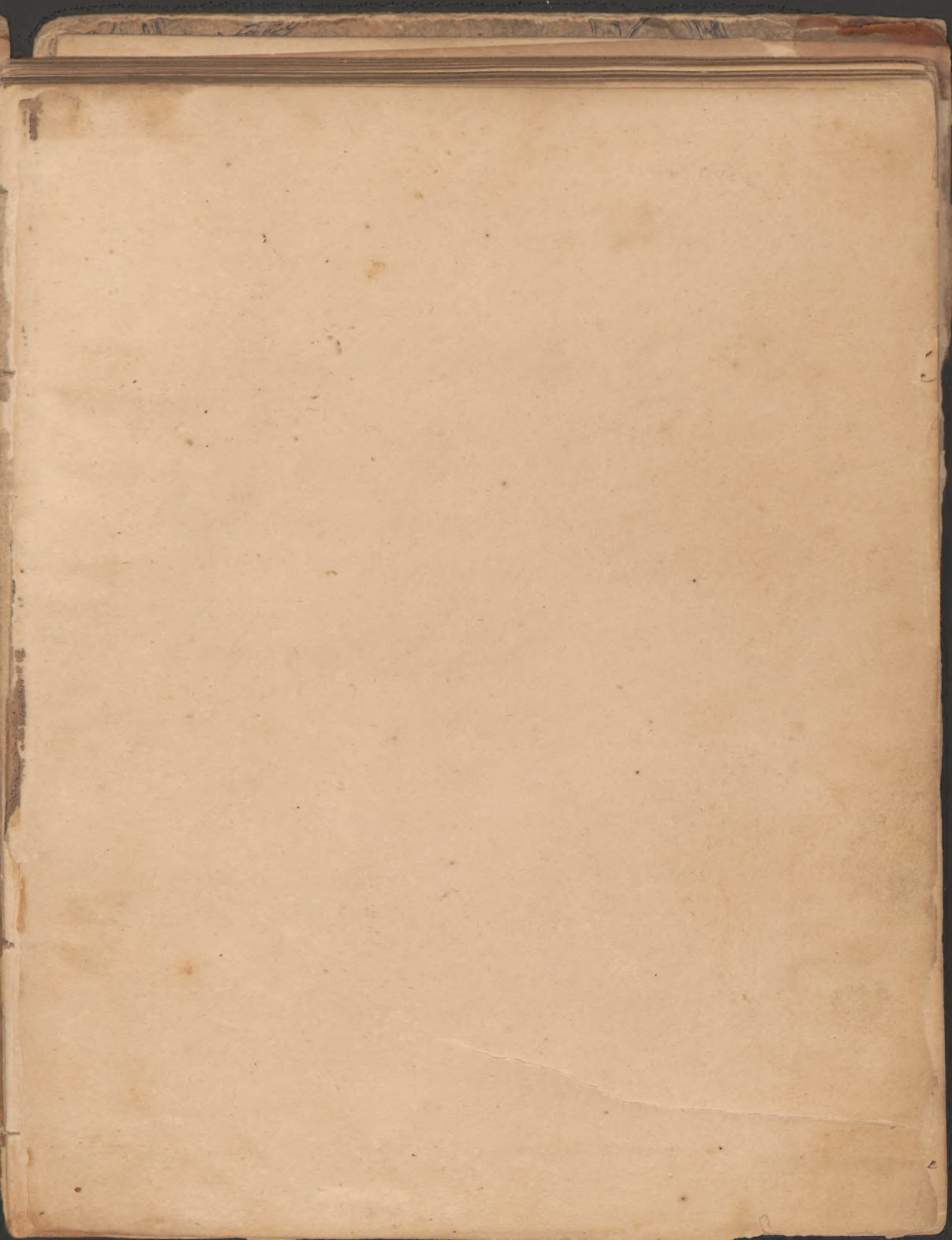
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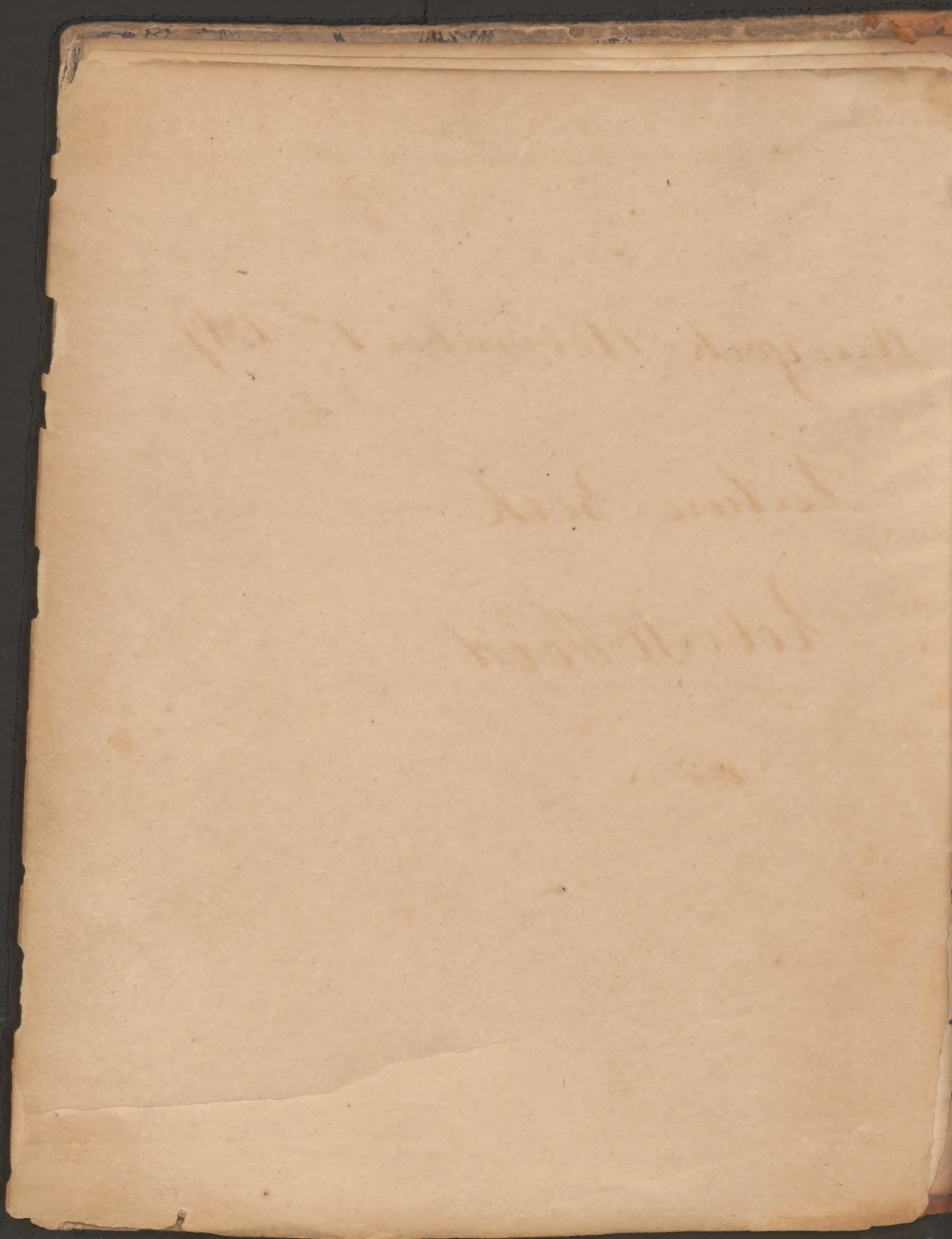
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New York November 1st 1819

Lecture Book —

Robert Wood

no.
tables of 10

NLM

November 1st Dr. Hosack's Introductory Lecture, an Eulogy on Dr. Hugh Williamson.

November 2^d Dr. Macneven's Introductory Lecture on Chemistry & Materia Medica, in which he in part revives the exploded doctrine of the Humoral Pathology, and maintains that all medicines act through the medium of the circulating system he considers the doctrine of Sympathy as untenable, and adduces many facts, showing that medicines to be efficient must enter the Circulation, he mentions the singular fact, that by a frequent use of the Nitrate of silver, many delicate women have had their complexion changed to a black colour, especially their face and hands which were most exposed to the air; he notices the fact that many animals eat vegetable substances with impunity which prove mortal to man, he mentions the Colchicum as a remedy for gout, which he says is generally the consequence of an impaired state of the digestive and assimilative organs, he notices the different effects which Vegetables of the same class, and whose sensible qualities

are similar have on the constitution, he closes this Lecture with a brief history of Chemistry, and its intimate connexion with the science of Medicine. —

November 3^d D. Mitchell, Introductory Lecture on Natural History - he commences his lecture by dividing knowledge into three branches, Physics, Ethics, and Dialectics, by Physics he means those laws relating to Matter, by Ethics those laws which regulate the moral conduct of men, and by Dialectics those laws of language whether oral or written, by which the intercourse between men is maintained, Matter is subject to Mechanical & Chemical Laws, he considers the air in which we live as compounded of solar, sidereal, and terrene qualities, and that Epidemics are dependent on certain constitutions of the air with which we are unacquainted, he takes a cursory view of the Planetary system, of the effects of heat, light and colour as derived from the sun, and of the influence of the moon on the tides, and on the human body, in which he mentions D. Mead's Treatise on the influence of the moon as of great value.

he displays many specimens of Organic remains
showing the changes which the terrestrial globe un-
dergoes, also many bones of different species of Ani-
mals which are now extinct

on the 4th I. Dr. Post's Introduction Lecture on Anat-
omy, Physiology and Surgery in which he took a short
and general view of the human body, the organiza-
tion and use of its several parts, the connexion of
the brain and nervous system with other parts, the
importance which Surgery has on Anatomy, and the
great advantages which a Physician derives from
an accurate knowledge of Anatomy in the practice
of his profession, he divided his Lecture into three
parts. Anatomy or a knowledge of the structure
of the body, Physiology or a knowledge of the
function of the different organs, and Pathology
or the knowledge of diseases and their distinctions.

Dr. Macneven commences his course of lectures by
pointing out the arrangement necessary for the
foundation of chemical knowledge, which consists
of Observation, Analogy and Experiment.

The power of Matter are Attraction, Gravitation & Cohesion, Chemical Affinity can only take place between parts of a dissimilar character, which form a tertium quid different both from the matter even and the thing changed. So that the undergoing crystallization must be in a previous state of solution, and their destruction is determined by the different forms they assume. the aggregation of their parts is more regular if the operation of crystallization is performed slowly, to obtain them of the greatest purity and so the solution and recrystallization are necessary, some crystals are only obtained in solution as the Crystallization of Sulphur for instance which when it is added to the concile. In dry crystallization the water taken up is almost equal to the loss of the salt, the absence of salt is owing to the exposure to the air, this absence is owing to their attraction on water, salts are kept fluid by their exposure to the air their exposure to the air renders them into a smaller space by its pressure and causes the crystallization. Light bestows Crystallization.

November 5th Dr. Post commenced his course of
Lecture on Anatomy by a description of the nature
and properties of Bones, their composition & parts, uses,
columns, foris &c. he divides bones into cylindrical, con-
vex and concave and irregular classes, and as figures are
scarce for their shapes, he displayed many specimens
of ossified glands, as of the mesentery &c. Bones are
vital parts as they are vascular, nervous, and are
capable of regenerating themselves with the excep-
tion of the teeth which are provided with enamel
to protect them from the air, he concludes with
showing the absolute necessity of a critical know-
ledge of Anatomy —

Dr. Crumley's Introductory Lecture on the Philo-
sophical Practice of Medicine, in which he descanted on
the duties of a Physician, pointed out the value
of Clinical instruction, noticed the several
Prohibitions in the city their objects, their moral
regulations, and their subordination to the prac-
tical information of the Medical student. In the
course of his Lecture, he showed the uselessness of great
intellectual attainments, when unapplied to practical

purposes, or when made instrumental in the formation of chemical and secret unions. At the conclusion of his lecture he related the course, extent and progress of the disease which terminated in the death of Dr. De Witt.

Dissension in Nature - Common salt dissolves in water. Nitre in six sided prisms. Sulphate of Magnesia in four sided prisms. their different forms are sufficient to be known to distinguish them. Goniometer is an instrument to measure Crystals.

When Attraction takes place between dissimilar parts it is called Chemical attraction or Affinity. Some solids united together become fluid, and some fluids united together become solid. This is a demonstration of Chemical action. The Sulphur Potash is a very mild purgative, and yet it compounds a powerful caustic. Infusion of litmus, red like an Alkali a test of vegetable matter. One effect of Chemical action is to alter the specific gravity of bodies, it also changes their temperature. The Division separates Chemical Affinity by exposing more surface to action. Solution

possess different degrees of affinity owing to their various combinations. Decomposition is caused by the greater attraction for particles of another body. the affinity being greater between the two substances, than their own particles.

November 5th Dr. Port's Lecture, Bones are possessed of elasticity to prevent injuries as in falling from great heights &c. they are made hollow to render them light and to make their surface larger. the ends of bones are made larger for the attachment of ligaments &c. the foramina in bones are for the transmission of arteries, nerves &c. No transudation ever takes place in a living body, Bones are divided into compact, spongy, and reticular parts, their component parts are earth and animal matter, animal matter consists of gelatin and cartilage, Acid dissolves the earth and leaves the Animal matter.

Dr. Port related a very striking case of Mollities Ossium, he was called to see a man in the morning who the evening before was walking about his room apparently very well in the course of the night he was seized with a violent pain in his thigh, which continued

would moving when it subsided. Upon examination,
Dr. Ross found that the bone was detached almost
at right angles and that he could move it in all di-
rections without exciting the least pain. Upon dissection
the bone after the main process, it was seen that
a complete absorption of the bone had taken place ex-
cept in a few places where a few spicula of bone were
found, and from the flexibility of the bone when it
was examined it seems that this absorption must
have taken place in one night. Bones are
vascular, their arteries are derived into the
the Med. Vary arteries, the arteries of the Pains
bone, and the Cerebral arteries.

Dr. Ross's Introductory Lecture on the Principles of
the Practice of Surgery, he commenced by dividing
subject into three parts, Anatomy, or a general know-
ledge of the human system. Surgical Anatomy or
a knowledge of the anatomy which exists between
different parts of the body, and Pathological Ana-
tomy, or a knowledge of what when in a morbid
state, he made many remarks, showing the im-
portance and dependence which subject bears

Physic and Surgery, and the necessity for a Physi-
cian to acquire a competent knowledge of both.
He concluded his Lecture by a few observations on
Amputation in cases of gun shot wounds, he men-
tioned the opinion of John Hunter which was, that
in all cases of gun shot wounds, Amputation should
be deferred until the symptomatic fever has subsided,
maintaining that the operation must necessa-
rily increase the fever, this opinion he endeavored
to controvert by recommending the performance of
the operation before the Symptomatic fever has
supervened, and quotes many authorities, to estab-
lish the superiority of the practice of immediate
amputation —

November 5th Dr. Post's Lecture. The cavities of
the bones are lined with a membrane containing
Marrow the cells of fat & do not communicate
with each other, if they did it would settle in the lower
parts of the body as in Anasarca. There is a
communication between the lungs and the cavities of
the bones in ~~lungs~~ ^{placids} by which their cavities are filled
with air, and their specific gravities decrease.

Dr. Hall says the opinion that the act of bone is to pro-
tect and support to them is fallacious, he thinks
are unacquainted with its uses. Bones are of a fibrous
nature which fibres are formed into lamellae. Bone
have absorbents which is proved by exfoliation &c
he says that wherever there are veins there are ab-
sorbents. ^x Bones have nerves entering into their constitution
consequently they have feeling tho' it is not com-
municable to the mind. ^x The texture of bone con-
sists in their eminences &c. Epiphyses consist of
loose pieces of bone at the articulations, when they
unite they are called *apophyses*. The Perioste-
um is a firm compact membrane immediately
investing the bone, and is the medium of commu-
nication between the bone and other parts of the
body, on the head it is called *periocranium*
and on the ligaments *perichondrium*.

Dr. Hall is particularly taken with the Sur-
geon of Medicine and on Medical Surferies
which he reviews the use and place of bone
and its present state, the effect which it has on
the human mind and the necessity of the

During his lecture should be under the protection
and charge of government, he noticed the impor-
tance of Medical Jurisprudence, in the great in-
terests which it often involves, and the action
which should govern the public and private cha-
racter of a Physician and mentioned as an atten-
tion on the floor, in curing a consumption of the
body, not to cause a consumption of the purse.
The lecture throughout displayed his habit of over-
all. Clinical evolution and philanthropic feelings.

Dr Macneven's Lecture, Heat and Affinity are the
two processes by which every thing is formed, Affini-
ty varies in different bodies, the force of affinity
is modified by the relative proportions of the com-
pounds, Heat is a modifying power, it expands
bodies and diminishes cohesion. When the aggrega-
tion of bodies is strong, solid bodies will not act on
each other, but must be fused, Gases are opposed
to Chemical Affinity, as they repel each other.
Electricity also owing to its repellent properties is op-
posed to affinity, The Specific gravity of bodies in-
fluences their affinity, as in water and oil.

Precipitation is caused by the specific gravity of the precipitate. Compression hastens combination, as in gases. Carbonate of lime has been melted by strong compression in an iron cylinder. The laws of Affinity in bodies are their combination, cohesion, temperature, State of Electricity, Specific Gravity, and Compressibility. When two bodies have received as much as possible of each others properties, it is called Saturation. Acid turn Vegetable substances red. Affinity is governed by definite laws, 58 parts of Muriatic Acid will saturate 100 parts of Potash but it will require 100 parts of Sulphuric Acid. That process by which the component parts of bodies are separated, is called Analysis, that process by which their parts are recombined is called Synthesis.

November 9th Dr. Parry's Lecture. The use of the Peritæum is to protect the bones, to prevent friction on the bones, and for the attachment of ligaments &c. Anemisms often destroy bones by their pressure. This membrane in its natural state is nearly insensible but when diseased it is exquisitely

sensible. Inflammⁿ of this membrane terminates in
sloughing. It is of a ligamentous nature, and extror-
mely obnoxious to Venereal Affections, as nodes
which begin in this membrane, and afterwards
enlarge the bones. It is worthy of remark says Dr
Post, that nodes are situated on those bones near-
est the skin, he recommends Blistering for their cure
Cartilage is a dense white substance, placed at
the ends and between bones to prevent their fri-
tion, they are of a fibrous structure. Dr Post divi-
des them in the following manner: 1st Tempora-
ry Cartilages, which are in lieu of bone 2^d Artic-
ular Cartilages, or such as admit of motion. 3^d
Interosseous Cartilages, or those placed between
bones as in the ribs and sternum. 4th Moveable
Cartilages as in the knee joint &c. 5th Cartilages
which are flexible and form figures as in the
nose and ears. 6th The marked formed Cartilages
as in the Spleen, testicles, and other glands.
7th Spurious Cartilages, or those which form at the
two ends of a fractured bone. 8th Ligamentous Car-
tilages, or those uniting the vertebra together which
are very elastic. Articulations are those parts

of the body which admit of motion, Connexions are
when the articulations do not admit of motion -
When the articulation is in a deep cavity is called
Anarthrodia, when the cavity is superficial
Arthrodia, When both ends of the joint move
as in the arm it is called Ginglymus, The con-
nection between the bones of the head is called Su-
tura, when two parts are in contact Harmonia
and when one bone is driven into another as in the
teeth Gomphosis. Ligaments connect bones toge-
ther, some are elastic, and some inelastic, those
which are elastic admit of motion, Capsular
Ligaments are inelastic -

D. Mitchell's Lecture - He commences his lec-
ture by laying it down as an axiom that the ul-
timate particles of Matter are solid and impenetra-
ble, that it is resolvable into atoms, and that in
chemical action, they impinge on each other,
but do not absolutely unite, There is no such thing
as contact in the particles of Matter. Bayle in
his work on the immateriality of the soul advan-
ces this theory, that Matter consists of ultimate

particles in the form of bricks, and that the bricks are cemented together by immaterial matter. Boscovich's theory is, that Matter consists of Mathematical points which have no parts, that these points are surrounded with repulsive powers, also with a sphere of attraction, which draws them as near as the repulsive power of the points will admit. This latter theory Dr. Mitchell adopts and says that Matter is governed by Attractive and Repulsive laws.

Bodies are divisible into Mineral, Vegetable and Animal classes. Minerals are penetrable by Caloric, Magnetism &c. the forms of Matter in Minerals are symmetrical, Crystals are an example of organization without life. Vegetables are of vital organization, nourished by fluids and gases. The forms of matter in Minerals are similar. The lower species of Animals are distinguished from Vegetables, by their greater irritability, as the Polypus &c. — Dr. Mitchell displayed specimens from the Animal and Vegetable Kingdoms —

D. Macneven's Lecture, Those bodies which do not possess ponderosity are the following, the Luminous fluid, Caloric or the heat making fluid, the Magnetic fluid, and the Electric fluid. Caloric is contained in all bodies in different proportions. We determine the heat of a body by our own temperature. Heat always tends to an equilibrium in all bodies, it is elastic and dilatable, invisible, and of great tenacity, as it penetrates all bodies, the propagation of heat varies in different bodies, the heavy metals are the best conductors, liquids are very bad conductors, gases are non-conductors. Heat always ascends, as is seen in boiling water, the bubbles arising from the bottom of the vessel in consequence of their specific weight.

The following experiment was made by D. Macneven, he put a coloured fluid into the bottom of a glass vessel, and afterwards carefully added some water, the fluids were entirely separate, he then applied the upper part of the vessel, in which was the water to a lamp untill it boiled, and yet it was not at all coloured, he then applied the lower part of the vessel which contained the coloured matter to the

heat of the lamp, and immediately, the colouring matter began to diffuse itself through the water. The application of this is very easy, whenever the heat is applied, the fluid is made specifically lighter and consequently ascends - The temperature of the atmosphere is highest near the surface of the ground, and gradually becomes lower as we recede from the ground. Caloric causes expansion in all bodies, unless prevented by compression. Gases expand more than fluids, and fluids more than solids. Tho' the specific gravities of gases differ, yet they all expand in equal degrees of temperature. Mercury possesses great powers of expansion.

November 10th Dr. Parsh's Lecture. The ligaments between the os occipitis and the spinal processes are elastic. Synovia or that fluid which lubricates the joints is of a brownish colour, viscid, and consists of water, albumen, and soda. Dr. Monro's opinion that there are synovial glands is incorrect, it is secreted by the membrane of the capsular ligaments, in the same manner as the pleura secretes a fluid. Capsular or Bursal ligaments are bags which surround the joints and contribute

to their strength. They are inelastic, the restraining ligaments are those which prevent motion. The Crucial ligaments are those which cross each other, as in the thigh. The Lateral ligaments are those on the sides of joints. The Interosseal ligaments are those between bones in the tibia and fibula for instance. The Annular ligaments are those which surround joints, confining the motion of tendons and muscles as on the wrist. Saccula or bursae mucosae are bags, surrounding tendons to prevent friction of the bones. Cartilages precede the formation of bone. As soon as the formation of cart is manifest Ossification is discernible. The ossification of ribs is completed in the third month, as they are necessary to prevent compression on the organs of circulation, the Clavicle also is soon formed to protect the arteries which nourish the superior extremities. Bones are formed from centres of ossification. The secretion of earthy and animal matter constituting bone is made by the vasa vasorum. Dr. Ross relates a case wherein ulceration of the bowels was induced by an ossified mesenteric gland, causing the death of the patient.

D^r Mitchell's Lecture - Zoology is that science which
treats of Animals - Linnaeus divided Animals into six
Classes 1st Mammalia. 2^d Aves. 3^d Pisces. 4th Am-
phibia. 5th Insecta, and 6th Vermes.

1st Mammalia are those animals which are provided
with breasts to suckle their young, have a pulmonary
circulation, and warm red blood.

2^d Aves are corporeal, have a pulmonary circulation
warm red blood, and feathers.

3^d Pisces have no lungs but gills which supply air
from the element in which they live, their blood
is of the same temperature as the water in which
they exist, they are covered with squamee.

4th Amphibia exist either in water or on land.

They have generally lungs and cold red blood as li-
sachs, snakes, &c.

5th Insecta (from in & seco) breathe through holes
or Stigmata in their skin which is a catenaceous
or jointed mailed covering, this hard coat serves for
the attachment of muscles, &c.

6th Vermes. Under this class were placed all those
which did not come under the above heads, and which
of course consisted of many varieties.

Cuvier in his system of Zoology divided Animals into 4 Sections, containing 19 Classes -
Section 1st Vertebrated Animals, or those animals which have back bones, viz 1st Mammalia, 2^d Birds, 3^d Fishes, 4th Reptiles - the description of these has already been given in the Linnean system. The other 15 classes are composed of those animals which in the Linnean system came under the general head of Vermes.

Section 2^d Molluscous Animals, or those which are of a soft organization, consisting. 5th Cephalopodes, or those which have their feet or organs of motion on the head. 6th Terebracles or those which have their organs of motion in the form of wings. 7th Gastropodes, or those which have their locomotive organs on their bellies, as in those shell fish whose shells are univalves. 8th Acéphelous or those fish which have no heads, and which are bivalves, as the clam and oyster. 9th Branchiopodes, or those which have gills attached to the outside of their bodies, and whose shells are multivalves. 10th Cerchopodes or those which have their feet of a curled form as the barnacle &c -

L². Macneven's Lecture on Materia Medica. Substances have different degrees of affinity for different organs of the body, every part is endued with a peculiar irritability, the excitability also varies. Medicines have peculiar qualities, and modes of action.

1st Tonics or the Chylocratic system. Tonics increase the contractile force of the animal fibre and strengthen the tone of the stomach and intestinal canal. Bitters are in general tonic. Astringents increase the contractile force of the solids by shortening their fibres, and rendering them more compact. The Physical cause of Astringency is a Nervine principle. Astringency cannot be determined by the taste as many substances act on the stomach and intestines which exert no such power on the tongue, owing to their different affinities. Hemorrhages arise from Plethora and weakness. Astringents are indicated in the last. Astringents are of use in gout by strengthening the digestive powers. Bitters and Astringents are indicated in muscular debility. Aromatics and Alcohol which are tonic are indicated in low fevers, nervous affections, scurvy, and scrophula. A regular diet is necessary to be observed by Convalescents, then

should also drink but little, as it dilutes the gastric fluid and impairs digestion. The warm and cold baths are both tonic, the warm bath is stimulant and useful in Chronic Rheumatism. The cold bath reduces the temperature of the body. Exercise both active and passive is tonic.

November 11th Dr. Post's Lecture. The body is divisible into head, trunk, and extremities, the extremities into superior and inferior, the trunk into the neck, chest, and loins, the vertebrae are in the form of two pyramids, they are divided into Cervical, Dorsal and Lumbar, have many laminae, and are of a spongy structure internally. Each vertebra has 7 processes, the spinous process projecting immediately backwards 2 lateral or transverse processes, 2 superior and 2 inferior articulating processes to join them to the other vertebrae. These processes serve for the attachment of ligaments &c. and act as levers. The cervical vertebrae are small, have holes for the passage of the vertebral artery, and their canals are triangular. The dorsal vertebrae have their spinous process triangular, their canal round, and lateral process stronger, the ribs are connected

ted with these vertebrae by capsular ligaments. The lum-
bal vertebrae have their lateral processes longer. The
Vertebrae are united together by a ligamento car-
tilaginous substance, and by capsular ligaments.

Dr. Mitchill's Lecture. Cuvier's Classification - the two
first sections were considered in the former lecture.
Section 3^d Jointed or Articulated Animals. 11th
Annulids or those in the form of rings, as worms &c.
12th Crustaceans, as Crabs, and Lobsters. 13th Machine-
les as spiders &c. 14th Insects, the same as those descri-
bed in the Linnean system with the exception of the
three preceding species. These animals are distinguished
by their antennae and by their metamorphosis, their
changes are the following. 1st An egg. 2^d A worm or cete-
pillar - 3^d A Chrysalis, or that torpid state which
precedes the last change 4th A Butterfly which was
considered by the Greeks an emblem of the soul.

Section 4th The Rachary Animals, or those which have
radiated limbs in pairs. 15th Sea-urchins, crustace-
ous animals. 16th Intestinal worms, as ascarids, &c.
These animals infest the body, and have been found in
the Stomach, Liver, lungs, Brain, &c.

17th Sea-nettle. These are transparent, capable of producing light, and have little caloric. 18th Polyps or Poly-puses, these are found at the bottom of the sea, and their remains often make rocks and islands. They have many mouths and but one stomach. 19th Infusory Animals. These are found in vegetable infusions, in infusions of tea, pepper and cinnamon, and in all liquids. These animals gave rise to the Animalcular theory of diseases. La'Mark in his system of Zoology divided animals into three Sections, and fourteen Classes. Section 1st Apathic Animals or those which have no nervous system, or organs of sense. 1st Infusores. 2^d Polyps. 3^d Radiaries. 4th Vermes. Instead of a nervous system he supposed the muscles endued with a vis insita, to execute the motions, of the second division called Sentient Animals 5th Insects. 6th Mollusks. 7th Crustaceans. 8th Annulids. 9th Centipedes. 10th Mammals. Section 3^d Intelligent Animals or those whose brains are cased in a bony shell, and who have Vertebrae or a chain of bones forming a spine. There are 4 Classes of these 11th Fish. 12th Reptiles. 13th Birds. and 14th Sucklers or Mammalia.

Dr. Macneven's Lecture. Thermometers are of three kinds
Pyrometers, or those which resist fire, and are made of
Platina or clay. the Thermometers containing fluids, and the
air Thermometers, Mercury is more expansive than any
other substance, and on that account is generally used
for Thermometers, it freezes at 40 below 0 Fahrenheit, i.e.
the sensibility of Thermometers depends on the smallness
of their tubes, and the small quantity of Mercury they con-
tain. The freezing point is 32. and the boiling point
212. Fahrenheit. The Thermometer used at present in
Europe is called the Centigrade, because there are 100
degrees between the freezing and boiling points. Caloric
escapes two different ways, either by passing through the
air without decomposition, or by being conducted thro'
other bodies. that property of heat of separating from
bodies is called the tension of Caloric. To prove the re-
flection of heat the following experiment was made.
two highly polished plates of tin were placed at se-
veral yards distance directly opposite. a thermometer
was placed at a few inches from one of the plates,
and near the other a lighted candle was placed. the
rays of heat and light were reflected from one to the
other, and the mercury in the Thermometer which was

at 33. the temperature of the room rose in a minute to 80. by placing some coals before the plate, the heat in the other plate became so intense as to light a match at some distance. To separate heat from light the following experiment was made, some burning coals were placed before one of the plates as in the preceding experiment, and a thermometer placed very near the other plate, between the two plates a plane of glass was interposed, the rays of light passed, this as appeared by the resplendency of the other plate, but the rays of heat were arrested by the glass, as the Thermometer was not at all affected. Polished substances are more refractive than others.

November 12th Dr. Post's Lecture. The centre of gravity is anterior to the spine, the spine has several curvatures. its use is fourfold. 1st to support the weight of the body. 2^d for muscular attachment. 3^d to contain the spinal marrow which it protects, and 4th to allow of motion it admits of flexion, extension, lateral and rotatory motion it is liable to all the affections to which other bones are subject, as fracture, dislocation &c. dislocation of the vertebra is always attended with fracture except in the first vertebra.

All fractures of the vertebrae are eventually fatal. Concupiscence is followed by paralysis and inflammation which is to be remedied by venesection, leeching &c. Curvatures of the spine proceed from different causes. one cause of curvature is from a softness of the bones, as in rickets. these curvatures are in a lateral direction as the processes prevent them from bending forwards or backwards. Dr. Post recommends warm and cold bathing in rickets &c. Distortions of the spine often proceed from long continued postures, as in some particular employments. Another cause of curvature of the spine is a scrofulous habit to this curvature children are very subjects, it never takes place after adult age. the spine is bent forwards in this disease, owing to the ulceration or destruction of some of the vertebrae. The first symptom of this complaint is an inability to use the lower extremities, afterwards a total inability to walk, joined with a pain about the knee &c.

Dr. Mitchell's Lecture - Vertebrated Animals. The vertebrae of a testudo or tortoise consists of one piece which runs along the shell. The shell is divided into different parts called the marginal and central scapulae, and is connected by two pieces of shell to the lower part called the sternum. The vertebrae in cartilaginous fish are divided into joints, as in the shark

are composed of a bony cartilaginous matter, and have no canal for the spinal marrow, in lieu of processes, they are provided with holes in the vertebra for the attachment of muscles. In bony fish, the vertebra have processes to form a junction with the ribs, and a canal for the spinal marrow, which enables them to possess sensation and voluntary motion, there are two bones in the tail of fishes as a substitute for posterior extremities. Dr. Mitchell showed a specimen of the bird called waders, with a very long neck and legs.

Dr. Macneven's Lecture. The following experiment was made to show the different degrees of reflexion which substances possess. 2 tin plates were placed opposite to each other, a tube which had four equal square sides, was filled with water heated to 200 degrees of Fahrenheit, one of the sides of the tube was black one very bright, and one very much scratched it was placed in a grate opposite to one of the reflectors, in the other was placed a thermometer which stood at 84. by exposing the black surface it rose to 87 in a few minutes, by exposing the rough surface it soon fell. rough surface absorb more heat than polished ones. Black bodies have more emissive powers than any others. Reflexion is superficial, the power of emission is always equal to the power of absorption, points in a body are favourable to

emission. All bodies tend to an equilibrium in heat, when bodies
are of the same temperature absorption and emission are equal
the hotter body radiates more, the colder absorbs more. The mean
temperature of the earth varies but little. Caverns in cold countries
appear warm and in warm countries cold, which is owing to the be-
tween their temperature, and that of the external atmosphere.
One of the effects of Caloric is that of changing the form of bodies.
Bodies possess a latent heat, so called because it has no sensible
effect on the Thermometer yet ice can be melted without chang-
ing its temperature by giving out its latent heat. Liquids evolve
latent heat when assuming a solid form, thus the winter season is
rendered more temperate when much ice is formed, as the evolved
heat is added to that of the atmosphere.

November 13th D. Art's Lecture. The most general and
successful mode of treatment in curvatures and other diseases
of the spine is the establishment of a spine as near the seat of
disease as possible. Two years elapse some times before a cure can be
effected. Ankylosis is that process by which long matter is depon-
ed between two joints, depriving them of their natural motion, and
is the consequence of disease. The pelvis is composed of the os ilium
ischium, pubis and coccygis. The os ilium forms the upper and la-
teral part of the pelvis, the spine of the os ilium is on the upper

ant. the outer surface of the ilium is called the iliacum, the ischium is the bone on which we rest when sitting, the biceps muscle, the semi-membranosus and semitendinosus arise from the tuberosity of the os ischium. In the operation of the Stone, we cut between this tuberosity and the anus. A very large foramen is situated between the os pubis and os ischium, from which hole the obturator externus and internus muscles arise.

D. Mitchill's Lecture. Linnaeus divides the Class Mammalia into 7 orders viz. 1st Primates, or those animals which have a very complicated organization, a large portion of encephalon, are intellectual, and have sucking organs on the breast as man, the ape, baboon, monkey and bat. These have a full set of teeth. The distinction of the orders is derived from the teeth and claws 3^d Ferae, or beasts of prey, these are carnivorous animals, and have sharp teeth to seize and lacerate their prey. Of this class are the lion, tiger, dog, and cat. 2^d Bruta, as the elephant, this order is always without fore teeth. * These two orders are here misplaced, the Bruta forming the second order as expressed by the figures. * 4th Glires. The animals of this order have two upper and two lower teeth, a full set of grinders, but no canine teeth, as the squirrel, mouse &c. 5th Pecora, or ruminant animals, These are herbivorous,

have four stomachs, and no teeth in the upper jaw except the grinders. Of this class are horned cattle. 8th Bellua. This order includes those animals, not belonging to the five preceding orders, nor to the succeeding one, as the horse &c. 9th Cete. These animals, have a pulmonary circulation a double heart, mammae to suckle their young, and a penis to perform the act of generation, as the whale &c.

Dr. Macneven's Lecture. Tonics are stimulant medicines which produce durable effects. They are applicable in the feeble forms of disease. The following rules are to be observed in their use. 1st To begin with small doses, with some exceptions, as in Typhus, some Neuroses &c. 2^d Not to combine many tonics in one prescription, but always to keep some in reserve. 3^d When the excitability of the stomach is worn out, to introduce them into the ~~stomach~~ body by the skin. 4th To endeavour to graduate the Medicine to the state of excitability of the system. The Cinchona officinalis grows in South America, there are three species used in practice, the pale, red, and yellow. The pale is more aromatic, and bitter, the red is the most astringent and efficacious. the pale is often rejected by the stomach. Bace, produces very few sensible effects. Intermittents

in their commencement are often attended with inflammatory symptoms, and in the cold stage obstructions are sometimes formed. In this situation Bark would be inadvisable as it would increase the fever, and excite pain in the obstructed viscera, but Opium and Mercurial purges should be the remedies. Bark is generally given in the quantity of an ounce in 24 hours, but where the indications for its use are strong it should be given in as great quantities as the Stomach will bear, joined with some aromatic as the Snake root, it should be given in substance when practicable, it is given in remittent fevers. In continued fevers as the Typhus which originates from Marsh miasmata, Mercury and diaphoretics with wine are preferable to the bark. —

November 15th D. Post's Lecture. The sacrum is triangular, the posterior surface convex and irregular. there are four foramina on each side for the passage of nerves &c. it has spinous processes, it is divided into its superior part, its base and apex. the articulation is the same as in the vertebra, it has an appendage called the coccyx, there are four pairs of sacral nerves passing thro' the foramina of the sacrum. The spine is liable to a disease called the Spina Bifida, which

is a collection of water in the dura mater membrane surrounding the medulla spinalis, forming a sac or tumor which causes a displacement of the nerves in the sac. It is sometimes an independent disease, sometimes combined with Hydrocephalus, it is generally mortal but has sometimes been cured by Mr. Cooper by puncture, evacuating the water by degrees, and by gradual pressure on the prominent sac. The os coccygis is composed of four pieces, which are of different sizes, it has ligaments which connect it to the sacrum. Parturition is sometimes impeded by an anchylosis of this bone it is sometimes fractured by accidents, and in parturition, the form of the pelvis is elliptical, the greatest diameter is from side to side, the two ischia and the coccyx form the projecting points of the lower part of the pelvis, the pelvis of the female is larger than that of the male, it is subject to great deformities from molities and curetine, the division of the symphysis pubis has been practised, but it is of little use as the ligaments prevent the bones from separating to any distance, the Cassean operation is sometimes resorted to. In extra uterine fetuses an incision is made thro' the parietes of the abdomen to extract them.

D. Mitchell's Section. Cuvier divides the Mammaria

into 8 orders. 1st Bimanes or two hands as man alone.

2^d Quadrimanes, or those who have four hands or extremities as Monkeys &c. 3^d Carnivores or beasts of prey and Man-
ravenous or those animals, the females of which have pouches

on the outside of their bellies. 4th Rongens or Rongwers
as rats, mice &c. 5th Edentes, or those without teeth. 6th

Pachydermes or those animals which have rough skins as
the elephant or they are sometimes called Jumenta or

beasts of burden. 7th Ruminants, or those which chew
the cud. They have four stomachs. 1st The Rumen or that

organ which masticates the food. 2^d The Reticulum which
returns the food to the mouth. 3^d The Omasus which

receives the cud, and further masticates the food. 4th The

Abomasus, which contains the gastric fluid, and comple-
tes the digestion. 8th The Cetacées, corresponding to the

Linnean system. The teeth of animals are for their nourish-
ment and defence, some animals are without teeth as the

Edentes. There are three sorts of teeth. The incisives, the
canini or tearing teeth, and the molares or grinders. The

Order of Primates is divided into Genera. The Primates have
four incisives, and two pectoral teeth. 1st Homo, distin-

guished by his erect attitude, two hands, feet broad and
flat, and by the organization of his body. The cranium

is larger in man than any other animal, he is destitute of the ligamentum suspensorium, which supports the head of animals, and which proves that man could never have been a quadruped.

Dr. Macneven's Lecture. Most of the modern discoveries are owing to the discovery of the laws of heat. There are two kinds of heat. Sensible heat, or that which produces effects cognizable to the senses, and latent heat, or that which produces no sensible effects. The Sulphate of Soda, and fresh fallen snow will reduce the Thermometer to 0 owing to their great affinity for each other. Freezing mixtures are generally formed of crystallized salts, which contain a great quantity of frozen water which attracts the Caloric. They will freeze Mercury. Bodies assuming a solid form evolve heat, and bodies assuming a fluid form absorb heat. Water boils at 212. Ether at 98. Atmospheric pressure restrains evaporation. Steam contains no greater quantity of heat than boiling water which is proved by placing a Thermometer in boiling water and the steam arising from it. Gases expand by adding heat or diminishing pressure. The reason why fluids boil soonest on high mountains, is owing to the less pressure of the atmosphere at their tops.

November 18th Dr. Porti Lecture. The bladder when distended rises above the bones of the pelvis. The thorax is made up of the spine, ribs, sternum, and the cartilages which connect the ribs. The broadest part of the chest is below. The upper surface of the diaphragm is even with the fourth rib. The ribs are twelve in number. There are seven connected with the sternum called the true ribs, and five called false ribs. A rib is a curved bone divided into its body and two extremities, called its sternal and vertebral extremities. The external surface of the ribs is plane, the internal surface convex with a groove in it for the passage of an artery, vein and nerve. A rib has an head, tubercle and angle. The tubercle is near the extremity for the attachment of the lateral processes of the vertebra, it has a cavity to receive the cartilage of the sternum. The circulation can be stopped by pressing the artery as it passes under the clavicle to supply the superior extremities. The length of the ribs increases from the 1st to the 7th or 8th and then decreases. In inspiration the ribs are drawn upwards by the intercostal muscles, the sternum is thrown forward, and the diaphragm descends, enlarging the capacity of the chest for the admission of the air. In expiration the ribs and sternum fall, the diaphragm ascends from the action of the abdominal muscles, diminishing

the capacity of the chest. the function of the *sacculus pectoris superior* is to draw down the ribs. the form of the cartilages is very similar to that of the ribs, with which they are connected. Dislocations of the ribs are very rare owing to the in great elasticity. The sternum is composed of three pieces the superior, middle and inferior parts, the superior piece resembles a heart in shape, and is connected by cartilage to the clavicle. The inferior part forms the *cartilago ensiformis*, which is sometimes perforated.

D. Mitchell's Lecture. Genus *Homo*. In Galb's Craniology, the nerves are traced from the organs of sense to the brain, he pretends to know the character of a man from certain marks on the skull. Thus the organ of generation, and the organ of parental fondness are placed behind the occiput, those who have a projection of the frontal bone are apt to receive instruction. Physiognomy is placed within the orbit of the eye &c. Men are divided into Artificial varieties, or those who have Conical and Flat heads. Compression of the skull is practised in some countries, which makes them nearly flat. In the South Sea Islands, they disfigure themselves by puncturing the nose and ears for the purpose of wearing ornaments, they also practice tattooing, or puncturing the skin.

and inserting a colouring matter which is never absorbed. The reason why the rite of circumcision, which is cutting off the prepuce was instituted among Christians, was the prevention of diseases to which these parts are subject from uncleanness. There is a practice existing among the Hottentots of removing one testicle, the reason unknown. Man is the only Animal whose prepuce is not connected with the body. Next come the Morbid Varieties, as those men who have swellings of the thyroid glands, called the Goitre, which is accompanied with a dulness of the faculties, and with Idioty. The Albinos or those whose skins are of a chalky whiteness whose constitutions are delicate, and their eyes are destitute of the pigmentum nigrum, which gives them the appearance of red eyes, their sight is very weak. Natural Varieties, among which are the dwarfs, or men of small stature as the Lilliputians and Esquimaux, the giants or men of large stature as in Patagonia. The Hottentots whose women have large sacral bones, and an appendage to the nymphæ, covering the vulva. The brown race as the Tartars of Asia and America which lead a wandering life.

D. Macnevin's Lecture. Ice is produced by evaporation. Put a small quantity of water into a vessel, and add some Ether

which will remain on the top by its specific gravity. introduce this vessel into an air pump and by producing a vacuum the ether will boil and evaporate, and the water will freeze. Some sulphuric acid should be placed in the receiver of the air pump which will absorb the evaporated ether.

Evaporation is modulated by pressure. Extracts are prepared by evaporation. One gallon of boiling water added to an 100 gallons of cold water will increase the temperature only one degree, but one gallon of water converted into steam and condensed will increase it nine degrees. The sources of heat are the sun and terrestrial bodies. Rays of heat differ from rays of light. Heat can be separated from bodies by compression and percussion. Atmospheric air contains Caloric which was proved by the following experiment, a piston was pressed into a cylinder air tight, which forced the air into so small a compass, that fire was produced, the spark being quite luminous. to this cause may be referred the accidents which often happen in ramming down guns. The sources of cold are evaporation and the change of form. Light oxidises bodies, its beams are separable into seven colours by the prism. The red rays are the most refrangible and heating. The violet rays have the greatest chemical power, and are the least refrangible. The yellow and green rays reflect most. There are invi-

visible rays, which are more heating as is proved by the Thermometer. Certain bodies absorb and retain heat without decomposing it as phosphorus, diamonds, and sea water. Combustion never occurs without the presence of air.

November 5th Dr. Post's Lecture. The ribs are subject to fractures, they generally occur from the 5th downwards. The fracture is known by a gridding of the bone, an acute pain in inspiration, coughing, and bloody expectoration. A crepitus sometimes can be heard. An emphysema sometimes occurs, which extends to the cellular texture of the lungs and over the whole body, it is distinguished by a crackling sensation under the fingers. In cases of fracture the ribs must be kept free from motion by bandages &c. Venesection and a bliste. The emphysema must be prevented or cured by cutting down to the ribs. The sternum is also liable to fractures. The superior extremity is divided into the shoulder, arm, fore arm, and hand. The shoulder is divided into the scapula and clavicle. The form of the scapula is triangular, its external or dorsal surface is convex in the centre, its internal surface is concave, it has three edges, the base, and superior and inferior costa, it has three angles the superior, inferior, and anterior, the glenoid cavity is for the reception of the head of the humerus, the coracoid

Process arises from the anterior part of the scapula and serves for the attachment of muscle. The clavicle is situated between the scapula and Sternum and keeps them apart. it arises from the coracoid process of the scapula. it is frequently fractured. the mastoid, deltoid, and subclavius muscles arise from the clavicle. in cases of fracture the shoulder falls. the shoulder must be reined. the bones lie in apposition by friction, and compressed put between the ribs and arm. the bones are very seldom placed in perfect apposition.

Dr. Mitchell's Lecture. Dr. M. related a case of a soldier on Governor's Island who had swallowed five knives and passed them by the intestines. he showed the knives. Dr. M. says, that he has a paper which proves that America was discovered 500 years before Columbus was there. Beardless men or those having small heads as the Tartars, Chinese, and Malay, brown race, as the American and Asiatic Tartars, and American and Asiatic Malays. In the Feejee Islands there are men who feed on human flesh. Gov. Coe also told Dr. M. that there were seven men among the Miami Indians who lived upon human flesh. The White race, arising from the north of where the ark was supposed to rest, near the sources of the Tigris and

Emulshates, called the Eusepian or white Arab-
Sable race, or negros. living in the northern parts of Africa
and the south coast of the Mediterranean. The genera-
tive varieties, as the mulatto &c. The homodermis or wild
man, who has been found in France and in Poland, they
are capable of being humanised, and then forget their for-
mer condition. The Simia, including those ani-
mals next to man, called Quadumanes, or those which
have four hands or extremities, as the ape, monkey &c.

Dr. Macneven's Lecture on Mat. Med. Bark is applica-
ble in rheumatism after the inflam. fever has been subdued.
it should be given however with caution. In arthritis and gouty
affect. combined with a weakened state of the digestive organs, as
recommended by Sydenham and Gregory. Dr. M. mentioned two
cases in which gout had been suspended 2 years by bark.

It should be given in all periodical diseases in the intervals
of intermission. It is beneficial in confluent small pox where
the fever is of the typhoid character. Where tonics are indi-
cated Bark is the best. Crysosporus is generally inflam. in
this country, but where it occurs in marshy countries, and the
constitution is feeble Bark is useful. There are two kinds of
Scarlatina, *Scarlatina anginosa*, and *Scarlatina mchyma*

in the latter which is attended with great debility. Bark
is serviceable. Dysentery is a Phlegmasia, but in marshy
countries it has interruptions, in which case the Bark is
indicated. In Scurvy and Menorrhagia Bark, combined
with Lime water, and iron is very efficacious. In ner-
vous and spasmodic complaints. Epilepsy is very frequ-
ent among young people, and is generally owing to congestions
in the blood vessels of the brain, but when it is of long conti-
nuance, tonics are indicated. Chorea has been removed by
free purging, but tonics are applicable when it has existed
some time. Bark is given in the second stage of Pertussis.
Where Asthma is combined with an impaired state of the
digestive organs, bark is useful. In the Cachexia, as in
Consumption where the hectic fever has periodical exacer-
bations, and in that Consumption where there is no hectic
fever, but an emaciated state of the body, dry cough, and
sweetish expectoration. Bark is indicated. In Scrophulous
constitutions, Bark and Mercury combined acting as an attractum
and tonic, are valuable remedies, in the last stage also when
tumefactions and ulcers are present. Bark combined with Cicuta
and also used externally are useful remedies. In Rickets.
In fact when the internal use of bark should be combined
with the external application of the canth and charcoal.

flowthes. In Leucorhea, one kind of which Dr. M. supposes to occur from a vitiated secretion of the menstrual fluid, and which is rendered very probable by the fact, that during the disease of Leucorhea, Menstruation is suppressed. Bark should be given. In Gangrene unaccompanied with inflamⁿ. Bark joined with stimulants as wine, musk, and serpentaria, has been found very beneficial, but the employment of Opium in gangrene has in some degree superseded its use. Bark applied externally to the stomach where it could not be given internally has cured chronic diarrhoea's and other diseases.

November 18th Dr. Post's Lecture. Fractures of the scapula can only be cured by position its head is sometimes fractured. The arm is divided into its body and two extremities, its head forms a section of a sphere, is covered with cartilage, and rotates in the glenoid cavity. There are two tubercles near its head to which are attached the supra spinatus, the infra spinatus, the subscapularis, and the biceps cubiti flexor muscles. There is an eminence about its middle caused by the tendon of the deltoid muscle. Two condyles are situated at the lower end of the arm for the attachment of muscles, one joins the radius, the other the ulna. The articulation between the arm and forearm is effected by an theodiar, so called from the cavity being superficial. Dislocations of this bone take

place, downwards, backwards, and inwards. the coracoid process prevents its dislocation upwards, they are most frequent downwards, and the symptoms are a cavity under the acromion pain in motion of the arm and the head of the bone being felt in the axilla, to effect its reduction there should be one fixed point for extension as the elbow the arm should be raised a little, and a gentle continued extension made and in a recent case when the limb is brought in a proper position the muscles by their contraction will effect the reduction without the aid of either manual or mechanical labor. The next most frequent dislocation of this bone is forwards, in which the symptoms are the same except the head of the bone being felt under the pectoralis muscle. the reduction of this luxation is frequently impracticable. When the dislocation takes place backwards, the arm is shortened, and the head of the bone is felt on the dorsum of the scapula. The two bones of the forearm are the radius and ulna, the ulna is the longest and largest and near its upper part a process called the coracoid process, it has also a acromioclavicular cavity, in which a projection of the radius moves, and by which motion is performed. the lower extremity of the ulna is small. on the inner surface of the ulna is the styloid process. The radius is small at its upper part and large at its lower part, it has also a styloid process

at its lower extremity, it has a tubercle on its upper part for the attachment of muscles &c. the ulna performs most of the motion of the arm.

D. Mitchill's Lecture - The Simia or ape family, 4 teeth in the upper and lower jaw. The Simia are divided into four Sections. Section 1st The tailless, or those without tail, as the Simia Troglodytes, who live in families. the Simia sylvestris or Cuscary Cutang, the Simia satyrus or Locke, and the Simia lar or long eared ape. Section 2^d The short tailed, as the Simia M. monstrosa and the Simia Marmos. Section 3^d The long tailed as the Simia nemus, the Simia masia, and the Simia diana. Section 4th The American monkey, of these are the Sapajous, which have curled tails to suspend themselves from trees, and the Saguins, or those whose tails are not curled. Lemur with 6 teeth, of these some walk and some have wings similar to parachutes by which they can descend from trees & without injury, as the Vespertilio or bat which has wings connecting the superior and inferior extremities of these are the Vespertilio vampyrus, or vampire of which such extravagant stories have been told. the Vespertilio Spectrum, so called from its appearing in the night. the Vespertilio Spasma, so called because the sight of it in

the night has produced spasms. the *Cesphentis Armitus*,
the *Cesphentis Minanus* from its looking like a mouse
and the *Cesphentis Molopus*. It will be recollected that
all these belong to the order of Primates. Class Mamma-
lia - Next comes the order Bruta. of the Class Mam-
malia, which have no front teeth, and some of them none.
The *Bredipus* or Moth, which has six grinders, and is cov-
ered with hair. The *Mermegaphega* or ant-eater, which
has no teeth, and lives upon ants. The *Pladipus*
which has no front teeth, and has flat feet. The *Ma-
nus* or scaly lizard which has scales on its body.

The *Dizipus* or Armadillo which has neither hair or scales
but is covered by rings of shell. The Rhinoceros, which
has a horn or horns on the nose. There are two species, the
Rhinoceros Unicornis, and the *Rhinoceros Bicornis*, they
are found in the south of Asia. The *Sophatyrus* or hor-
ned hog. The Elephant which has no front teeth but
canine and grinders, it has an elongation of the snout, cal-
led Proboscis, which serves as an organ of nourishment and
defence, it is found in the torrid zones but will live in
the temperate zones. There are two species, the Asiatic and
the African. The Mastadon so called from
the form of the teeth.

L^d Macneven's Lecture. Simple Bodies are divided into six classes Clasp 1st The more simple parts as Carbon, Limestone, Oxygen, Hydrogen and Nitrogen. Clasp 2^d The acidifiable bases the most common of which are Nitrogen, Carbon and Sulphur they are composed, that is acids of two substances, the acidifying and acidified bases, the stronger acids are distinguished by their ending in ic, and the weaker in ous, thus Sulphuric acid is stronger than Sulphurous acid. Clasp 3^d Metallic substances, which are acted upon by acids, when the metals unite with acids, but do not form an acid, they are called oxides. Clasp 4th Earths, some are found in a saline state, they are generally mixed together. Barytes is the most ponderous of the earths. Clasp 5th Alkalies. Potassa and Soda are pure vegetable Alkalies. Ammonia is a compound substance. Clasp 6th The more complex parts of simple bodies.

Chemical Nomenclature

| 1 | 2 | 3 | 4 | 5 | 6 |
|--|--|--|---|---|---|
| Simple Substances, as the earths & Metals, &c. | Simple Substances combined with Carbonic | Simple Substances combined with Oxygen | Simp. Subs. united with Oxyg. & Carbon to render them gaseous | Simp. Subs. united with acids to form Neutral Salts | Simp. Subs. united with other simple Substances |

November 19th Dr. Post's Lecture. In dislocations of the fore
arm moderate extension should be made to disengage the coronoid
process the ligaments are lacerated, considerable inflamⁿ and fever
supervenes which should be combatted by bleeding &c. the evaporation
wash for the inflamⁿ the joint should be moved after three weeks
should a thickening of the parts take place apply a blister. When
a fracture of the olecranon happens the triceps muscle draws up
one part of this fracture, a splint should be placed on the anterior
part of the arm to keep it in an extended state, One or both
of the bones of the forearm are liable to be fractured, to discover a
fracture of the radius which is most frequent. take hold of the wrist
and rotate it, and a crepitus will be heard, a fracture of the ulna
is easily discovered, from its superficial position. To effect an union
of the fractured bones a splint should be applied under the arm
and one on the anterior and back parts of the limb, but none on the
upper part, which should be left for the application of cooling wash
No bandages should be applied in this fracture, for they
would press together the two bones, and the callus might unite
them. The hand is divided into three parts, the carpus, meta-
carpus and fingers. the carpus is made up of 8 bones which are
connected by strong ligaments, and have considerable motion am-
ong themselves, there are two rows with 4 bones in each, the upper

row consist, 1. Scaphoides. 2. Lunae. 3. Cuneiforme. 4. Piriforme.
The lower row consists of 5. Trapezium. 6. Trapezoides. 7. Os. mag-
num. 8. Muciforme. the first metacarpal bone is attached to the
Trapezoides, and the middle metacarpal bone to the Os. magnum.
The carpus is attached to the end of the forearm, is convex on its
back part, and concave on its under part. The bones of the Me-
tacarpus are divided into a body and two extremities, the lower
extremities form a ball and socket joint. The fingers are made
up of three bones, they are connected by ginglymoid joints.—

D. Mitchell's Lecture. 3^d Order Fera or wild animals.
They have 8 upper teeth, 4 Laniary which are longer than
the rest, and their molars are conico-cuspidated or with
very sharp points. These are divided into two families the
Insect eaters, and the Carnivorous.

The Insect eaters, of which are the following vir-
Genus 1st The Erinaceus, or Hedge hog, living upon insects,
it is covered with bristles to defend itself. Genus 2^d The Sorex or
Shrew of which there are the following Species. The Araneus a
spider shrew. the Fodius or water shrew. the Moscus, the
Aquaticus, the Escordetis, the Satisis, the Semisquinosus.
Genus 3^d The Talpa or Mole of which there are the fol-
lowing Species. the Europea, the Cristata, and the Cereulea.

The Carnivorous Family. This family is divided into 3 Orders. the Plantigrades, or those which have flat feet, the Digitigrades or those which walk on their toes and the Amphibious or those which live either on land or in water. Order 1^o The Plantigrades. Genus 1st Ursus. or Bear. of these are the following Species - The Ursus Arctos or brown bear of Europe. the Ursus Americanus, or black bear of N.A. the Ursus Maritimus or white bear. Genus 2^d The Lotor or Raccoon. as the Canis vorax, so called from a crab. Genus 3^d The Meles or Badger, as the Canadensis. Genus 4th The Gulon or Skunk. Genus 5th The Luscus or Wolverine. Order 2^o The Digitigrades. Genus 1st The Mustel or Martin. of which there are 4 sub-genera. Sub-genus 1st The Putorius. The Furo or Ferret. the Sarmaticus, the Ermine or Ermine. and the Siberica. Sub-genus 2^d the Mustina or Weasel. Sub-genus 3^d the Lutra or Otter. Sub-genus 4th the Mephitis or Skunk. Genus 2^d The Canis or Dog, of these there are the Canis Familiaris a domestic dog of which there are about 30 varieties. the Lupus or wolf, the Vulpes or fox, and the Lyxena with others. Genus 3^d The Felis, or Cat. as the Leo or lion the Tigris or tiger, the Onc, the Leopard, Panther, Lynx or wild cat

Ordo 3^d The Amphibious, as the Phoca or Seals
of these there are several Species, as the Sea lion, Sea
elephant &c.

L. Macneven's Lecture. There are 47 simple bodies, the
compound are more numerous, of these 7 are very active, as
Oxygen, Hydrogen, Sulphur, Carbon, Boron which are simple
bodies. Oxygen, Hydrogen and Carbon form vegetable matter.
Hydrogen added to these three with sometimes a little Sulphur
form animal matter. When two simple metals unite it is cal-
led an alloy. In all gaseous compounds, one must have been
solid, except Oxygen and Hydrogen which exist in the air.

The Chemical Nomenclature is formed by uniting the names
of the elements of a compound, and naming its compounds.
A gas is a substance permanently elastic, which distinguishes it
from vapour. The weight of atmospheric pressure is 14 lbs up-
on the square inch. The specific gravity of atmospheric air
is 1.000, it is used as a standard in weighing the gases. Oxygen
weighs 11.47. Air is weighed by an instrument in the form of a
globe which contains a given quantity of air, and is provided with
a stop cock. By removing the stop cock atmospheric air rushes in and
fills it. In this state it is weighed, afterwards it is screwed on the air pump and
exhausted of air and again weighed, which gives the weight of the air.

November 20th Dr. Post's Lecture. The femur which is a cylindrical bone is divided into its head and two extremities, the head of the bone is connected with its body by a neck, on its upper part the great and small Trochanters are situated, it is called so from the muscles which are inserted in it and rotate the limb the great trochanter is covered with a tendon of the gluteus muscle. The psoas magnus is inserted in the less trochanter, the linea aspera is a rough line on the concave part of the femur for the attachment of muscles, this bone at the lower part is very large making the two condyles, between which the patella is situated the capsular ligament which surrounds this joint is very strong Dislocations of the femur at its upper extremity take place in 4 different ways. 1st Upwards and backwards, when it is thrown on the os humeri. 2^d Upon the thyroid hole. 3^d Downwards and forwards. 4th Upwards and forwards. In ^{or dislocations} lectures we are to judge from the relative situation of parts from the three following especially, the spine of the ilium, the os humeri, and the great trochanter in their natural state. When the os femoris is dislocated upwards and backwards, the leg is shortened, the toes turned inward, and the limb supine. Sometimes in consequence of ulceration of the acetabulum the head of the femur is pressed in to the pelvis. Fractures are distinguished from luxations by the mobility of the limb, and by crepitus.

Dr. Mitchell's Lecture. Continuation of the Fera.

The Marsupials or those animals which have bags on their bellies.
The Genus *Didelphis* or those with double wombs. The *Opussum* *Texanum* of N. A. The *Opussum* *Marsupialis* of Cayenne, the *Opussum* *Carnivora* of Brazil and the *Opussum* *Dorsum*, the *Opussum* *Parvulus* or *Phalanger* of New Holland.
1790 4th The *Glires*, or *Rongiers*, or *Arnavers*, with 2 front teeth in each jaw, near each other and remote from the grinders: Genus 1st The *Hystrix* or *Porcupine*. Genus 2^d The *Cavia* or *Guinea pig*. Genus 3^d The *Castor* or *Beaver*. Genus 4th The *Mus* or *Mouse* and *Rat*. Genus 5th The *Citellus*, or *Marmot*. Genus 6th The *Sylvus* or *Squirrel*.

Dr. Macneven's Lecture on Materia Medica. Tonics. *Serpentin* is perennial, indigenous to Virginia. The dried root is aromatic & a pungent taste. The active properties are a bitter resin and essential oil. It is stimulant, tonic, and expectorant, it promotes the urinary secretion, it is joined with bark in the typhoid state of fever, in remittent fevers, it is given in the secondary stage of pleurisy, in protracted intermittents, is used for a gargle in sore throats, in Dyspepsia, it checks bilious vomitings, it is contraindicated in inflam^y diseases.

Rumex Virginiana, a tonic, it is bitter and astringent to the

taste, it resins, colligative sweets, is given in asthma and in chronic stages of dysentery. *Angustura Bark* is tonic and astringent, and is given in affections of the stomach.

Columbo radix is tonic and antiseptic, is given in Cholera when there is a redundancy of bile, it removes nausea in the early stages of malarial fever - *Gentian Lutea*, the root is generally an ingredient of all bitters, it is given in dyspepsia and gout. *Duasia excelsa*. This is a very useful bitter.

November 22^d. Dr. Parry's Lecture. Dislocations of the femur should be reduced by giving the limb by bandages between the thigh and by making extension. the thigh and leg should be fixed to relax the muscles. Fractures of the neck of the femur are distinguished by the crepitus, and greater mobility of the limb. In fractures of this limb, it should be placed in an horizontal position and extension made by means of splints. Dr. P. has only met with one case of a fracture of the neck of the femur, which he cured by keeping the limb in a flexed position. The English surgeons are of opinion that a fracture of this kind never unites, owing to the circulation in the limb being interrupted, the French surgeons are of a contrary opinion. Sometimes the acetabulum, sacrum and ischium are fractured by falling from a height on the ground.

one bone of the leg are three, the tibia, fibula, and patella. The tibia is more or less of a prismatic form and supports the whole weight of the body, it is divided into its body and two extremities, the upper extremity is large, and has two superficial cavities, or genoid cavities, separated by an eminence, the upper part is rough, and has many foramina, it has a tuberosity on its upper part for the insertion of the ligament of the patella, the lower extremity is enlarged for its articulation with the tarsus. In amputation when the bones are divided near the insertion of the medullary artery, there is a considerable hemorrhage takes place, the artery must be plugged. The fibula is a small bone large at the two extremities, its principal use is to increase the surface of the bone for the attachment of muscles, its lower extremity forms the outer surface of the ankle.

Dr. Mitchell's Lecture. Continuation of the Series.

Genus *Myopos* or Dormouse. Hibernation is observed from November, winter quarters, and has been applied to animals, many animals pass the winter without taking any food, and are nourished from the absorption of their own fat. Dr. M. conveys to the opinion of philosophers, says that white is the warmest colour, and black the coldest, when not exposed to the rays of the sun, In that case the body surrenders its own heat and a white colour being as a difficult transmission, the heat is retained, while if it were black

the heat would, pass off, this is the reason why Animals are clothed in white in winter, in those countries where the sun does not shine for many months, and also the reason why black people suffer so much from cold. Genus *Lepus* or jumping mouse - Genus *Lepus*, or hare and rabbit, some have tails, others are without.

Order 5th - *Pecora* - Ruminants. These have four stomachs, no upper teeth in their front jaw, have six or eight below, which are remote from the grinders, they have hoofs and tits in their groin. Genus *Camelus* or Camel, with a cloth upper lip, there are several species, as the Dromedary &c. and all under the government of man. Genus *Moschus* or Musk deer, which has a bag near the navel containing Musk, and which is used as an antispasmodic. These Genus have no horns - Genus *Cervus*, or Deer Family, which shed their horns every year, and of which there are several Species.

Genus *Antelope* with annulated horns.

Dr. Macneven's Lecture. The action of Oxygen is the most general of all bodies, it never exists separately, but in its most simple state is combined with Carbon and light, it is colorless, tasteless and without smell, when strongly compressed it emits heat, and appears luminous, Carbonic acid gas

and Hydrogen, when pressed become hot, but become a
pearl luminous. It unites with every simple body, but the
combinations are in various proportions, it forms an essenti-
al part of the atmosphere, and of water, Respiration can-
not be performed without it, and Combustion never takes place
without the presence of oxygen. It is generally obtained from
black oxide of Manganese by means of heat. Oxygen has a
strong affinity for Carbon, and combined with metallic bodies
it forms Oxides, some oxides are entirely decomposed by heat as
the red oxide of mercury. Some salts contain Oxygen, and Water
affords it by a strong heat. Substances weigh less after losing
it. The uses of Oxygen gas are extensive, as in supporting respi-
ration &c. This gas was first discovered and investigated by Dr.
Priestley, in the year 1774, but its various properties have been
known only for a few years, it is an acidifying principle, and is
not absorbed by water, other gases are. Combustibly burn with
additional splendor in Oxygen gas, as is proved by introducing a
piece of hot iron, or steel into a vessel filled with this gas
which burns with great brilliancy, emitting sparks in all
directions, A body or its residuum rather after combustion is heav-
ier than it was before, its increase of weight is owing to the absorp-
tion of Oxygen, An acid is formed by the union of an inflam-
mable base with Oxygen. The products of Oxygen are Oxides,

Acids and Alkalis. Flame is a luminous gaseous matter, the effect of combustion, though combustion sometimes occurs without flame.

November 23^d Dr. Parry's Lecture. The Patella is connected to the femur by a strong ligament, its external surface is convex, the internal is divided into two lateral surfaces, divided by an eminence and applied to the two condyles of the femur upon which they move. its upper part is called the apex and its lower part the base. The use of the patella is for the insertion of muscles, that extend the leg, as the rectus femoris, crureus, and the tendons of the vasti interni and externi muscles, which are inserted into its base. Dislocations of the knee joint are very rare, when they do occur, they are generally inwards or outwards, they very seldom take place backwards, owing to the great strength of the crucial ligament, these are easily discovered, and to effect their reduction, the limb should be flexed to relax the muscles. Fractures of the patella are generally transverse, and in 19 cases out of 20 are the effect of muscular action. in these fractures, the base of the bone remains in its natural state, but the apex is drawn up by the action of the extensor cruris muscle. the limb should be kept at right angles with the body to relax the extensor cruris muscle, and the inflamⁿ which supervenes, should subside, which it generally does in 6 or 8 days, before bandages are applied, a splint should be applied

on the under part of the limb, and after the inflammation has subsided, bandages should be applied, which are of two kinds, either of which may be used. one is a long roller, made to embrace the whole limb to prevent swelling and passed round the knee in the form of a figure of 8. the other is made of two circular straps, one passed round the lower extremity of the femur the other below the knee and drawn to each other by longitudinal straps, which approximate the fractured extremities of the patella. the flexor muscles of the lower extremity are inserted in the tuberosity of the ischium, and are sometimes fatigued by being kept for a long time in an extended position, they will be relieved by gently flexing the leg. Fractures of the patella generally unite by ligament, and 8 weeks should elapse before walking is attempted. Dislocations of the patella are generally inward or outward, in a lateral direction, and are easily reduced.

L^d Waterhill's Lecture. Continuation of the Pecora.

Genus Capra or Goat with hollow horns. In the stomach of one species of the goat stones called Boreas are found, which consist of the Carbonate of Lime, it is supposed to be an antidote to poisons, if so it must act by abrading, and neutralizing the acid poison. Genus Ovis, with hollow horns, which are filled with a process from the skull. There are many species.

Genus Bos or Ox, with hollow horns which are subject to

diseases as cancer, ulceration &c. causing hectic fever, emaciation &c.
of these there are several species, as the Bos Taurus, including
all domestic cattle, the Bos. Bison, or American Bison &c.

Order 8th The Beluoe with obtusely truncated
front teeth and hooped feet. Genus Equus. or Horse
with several species as the Equus Cabalis or tame horse, the
Asinus or Jackass, the Mulus or the Mule, the asinus
or the ne. sp. and female horse, the Zebra or the striped
sp. &c.

D. Macnevin's Lecture. The colour of flame depends on the nature
of the combustible body. Gunpowder burns in vacuo, this is owing to the
Nitric which enters into its composition, and which contains Oxygen gas
Within those three years three other supporters of combustion have
been discovered. Iodine, Chlorine and Fluorine. Iodine is obtained
from Berilla which is the ashes of marine vegetable, or from Soda
Berilla contains a great quantity of Sulphate of Soda. Iodine has
the following properties. it is of a brownish colour with metallic
lustre, is soft and friable, and easily pulverised, is of an acid
taste, and evaporates when exposed to the air, it first turns vegeta-
blest that are blue, red, and then white, destroying the colour. The
word Iodine is from the Greek and signifies purple, which is the
colour of its vapour, its vapour is heavier than any of the gases,

It is a nonconductor of electricity, it emits heat with some bodies with which it unites, but Potassium is the only body with which it emits heat and light during its union. When Iodine unites with simple bodies, the compound is called an Iodine, the Iodic acid is astringent and sour when mixed with water, it is so heavy that it sinks in concentrated sulphuric acid, which is twice the strength of water, as quick as lead does in water, it corrodes metallic substances, and is an excellent test of Iodine or starch in vegetables, turning the starch which is white to a blue colour.

The combination which is formed by the union of a base with Iodic acid is called an Iodate, it loses all its properties by being kept a year though it is excluded from the air. A heated substance preserves its caloric much longer in vacuo than when exposed to the air—

November 24th - L. Prots Lecture. The foot is composed of three parts the tarsus, metatarsus, and phalanges. There are 7 tarsal bones, the os calcis, astragalus, navicularis, cuboides, and the 3 osse cuneiforme, the medium, intantum, and extantum. The os calcis is the largest, and sustains the weight of the body, it has two articulating surfaces with the astragalus, in its posterior part the tendo Achillis is inserted, its inner part is hollowed out for the passage of arteries, nerves and tendons, it is very spongy in its top

ture. The astragalus is very irregular, and has two surfaces for the articulation of the malleus internus, and extensus per os peronae of the tibia, also two under surfaces for its junction with the os calcis. The anterior surface of the os naviculare corresponds to the three ossa cuneiforme, the ossa cuneiforme differ in their size and have posterior and anterior surfaces of articulation. The os cuboides has three surfaces of articulation, on its outer edge it has a groove for the tendon of the peroneus longus muscle. These bones are all connected by very strong ligaments, and have a considerable motion among themselves. The tarsus is convex on its superior part, and concave on its lower part. The number of bones of which it is composed is of service to prevent injuries from falling, and to accommodate the foot to the inequalities of the ground. There are 5 metatarsal bones which are convex on their upper surface, and concave on their under surface. The metatarsal bones of the great and little toe are stronger than the others. The three points upon which the body is supported are the os calcis, and the metatarsal bones of the great and little toes, the ankle joint is of the ginglymoid kind, the bones of the toes do not differ from the fingers except in their relative length. Dislocations of the ankle joint commonly occur inwardly, very seldom outwardly. Dislocations of this joint inwardly are generally accompanied with fracture of the fibula, as it forms the outer angle, sometimes the fibula is broken, without a dislocation of this joint. There are two series of dislo-

cation. the simple and compound. Compound dislocations are generally attended with great consequent inflam.ⁿ and to obviate the injury which the constitution might sustain, some surgeons recommend immediate amputation. But D. P. has had three patients, who recovered from this injury without amputation, by resection and other means.

In fractures of the leg L. P. prefers the bent position, that is the thigh should be flexed upon the body, and the leg upon the thigh, a splint should be applied on the under part of the limb. No bandages or splints should be applied untill the inflam.ⁿ has subsided and no danger need be apprehended, as the callus does not begin to unite untill three weeks after the fracture.

D. Mitchell's Lecture. Continuation of the Botulæ.

Genus Hippopotamus, or Water horse, this animal is of an enormous form. Genus Tapea. Genus Sus or Swine with tusks, as the Sus Scrofa a common hog with many varieties. Scrofula is derived from Scrofa, for in many countries Swine are affected with glandular swelling &c. which was the reason of the origin of the custom among the Jews of not eating the flesh of swine. The Fossil Genus Phalæothereum, of which there are several species.

Order 7th The Cete which are all inhabitants of the water. they have breathing holes in the fore part of the skull, Pectoral fins, no feet, and a horizontal tail. they have no hair or

scales but a very smooth skin, these animals spout water out of their breathing holes. Genus *Monodon*, or Sea Unicorn, with an elongated snout, these have a single horn on their head. Genus *Balena* or Whale with no teeth, but a horny substance in lieu of them. Genus *Physeter* or Spermaceti Whale with teeth in the lower jaw. Genus *Delphinus*, or Dolphin with teeth in both jaws.

D. Macneven's Lecture on Mat. Med. Quapin Simarouba astringent and bitter, a valuable remedy in the last stages of Dysentery, a small dose is as effectual as a large one. Croton or *Elaeagnia Escarilla*, of a bitter warm aromatic taste, the bark of which is given in dyspepsia, flatulent colic, diarrhoea, and the late stages of hectic fever. *Humulus Lupulus* or Hops which is a tonic, diuretic, and narcotic, and used as a substitute for Opium, it is given in paroxysms of gout as a sedative. Stone and Gravel are more rare in countries where acid and acid wines are not drunk. Mineral Tonics. Iron is the most abundant mineral production in nature and the most congenial to the human constitution as there is nothing deleterious in it. It is never best when given in small doses, and minutely divided which is the case in mineral waters, it is a powerful tonic, promotes digestion, and augments the strength of the muscular fibre, it is given

in weak Leucophlegmatic habits, chlorosis, plect, palsy, dyspepsia, rickets, and phthisis pulmonalis it must not be given in sanguineous temperaments. It is always found in the blood of warm blooded animals. Dr. Chapman is of opinion that it is generated in the blood but Dr. M. says that the animal economy can compound and decompose, but not generate. The effects of iron are very less. It is given in all Cachectic complaints. Impaired Livers are an excellent remedy in worms, owing to the Hydrogen which they evolve and which is fatal to worms. The sulphate is the most tonic. R. Mur. fer. is an excellent remedy in spasmodic strictures of the urethra. Copper is soluble in its metallic state. The Sulph. Cupr. is a powerful tonic, and is given in obstructive intermitting as an injection in plect, and a detergent in foul ulcers. The Cupr. Ammon. is given in Epilepsy, but should not be given in this or other nervous diseases until purgatives are premised.

November 25. Dr. Parke's Lecture. The head is divided into two parts, the cranium and face. The skull is made of two tables with a substance called the diploe between. The internal table is sometimes broken without the external being broken. much caution should be used in trepanning as the two tables are sometimes in contact. The cranium consists of 8 bones. the os frontis, os occipitis, 2 os parietalia, 2 os parietalia, os sphenoides,

and os ethmoides, these bones are connected by sutures of which there are the coronal, sagittal, squamosal, lambdoidal, sphenoidal, and transverse. The opisthion are little bones found between the sutures, which are to be distinguished from fractures. The cranium is divided into its upper part or arch, or in its lower part a base. The arch is convex on its upper part. The anterior part is the sinciput, the posterior part the occiput its top the vertex, and its lateral sides, there is a depression on the os tempora for muscles, &c. on the inner part there are depressions or pits for the convolutions of the brain, a groove for the longitudinal sinus of the dura mater, and impressions made by the arteries of the dura mater. The base of the cranium is very irregular, and is divided into its anterior, posterior, and median parts.

L^d. Mitchell's Lecture. Habivorous Cetacea, those have hands by which they can hold their young - Genus Meneti as the Species Tricheus, a mermaid, or Sea man or woman. Genus Dugong, or Indian Walrus.

Fabulous Zoology. 1st Mortoken observes, exaggerating and misrepresenting things, whence Sea serpents, and Tricheus, or floating islands, as they were supposed to be. 2^d Lying Travellers. 3^d Poetic inventions, whence, chimeras, gorgons, centaurs, griff-

gins, pegases, and harpies, 4th Creatures of heraldry as grained
-upped with birds feet, men with dogs heads &c. 5th Figments
of imagination, as ghosts, apparitions, and unreal animals,
as devils &c. 6th Hallucinations of the senses, as of the sight
and hearing, whence ocular spectra, illusions of the ear, and
phantasms of the senses. Books recommended by D. White
hills on Zoology. Duvoult Zoology. Pennant's Zoology
Cuvier's Animal Kingdom. Cuvier's Fossil Zoology, and
Cuvier's Comparative Anatomy. This ends the history of
the Mammalia, it is sometimes called Mammalogy.

D. Macneven's Lecture. Chlorine is one of the supporters of
combustion and is found only in substances that contain oxygen
it is obtained from manganese, and half the quantity of Sul-
phuric acid by a gentle heat, it has a pungent suffocating smell
and deprives all bodies to which it is added of their colours, it
forms acids with bases. The rays of the sun have great power
in separating oxygen from bodies, which contain it. The de-
tonting powder is composed of the oxy-muriate of potash,
sulphur and charcoal, and the ignition is produced by the
percussion. It is found that bodies lose in weight in pas-
sation to the oxygen gas they evolve. Ink is taken out of
bodies as are other colours by Chlorine.

November 26th L. Posti Section. The anterior part of the base of the cranium is that part forward of the styloid process. It is composed of the lower parts of the os frontis, and of the ethmoides, it has certain foramina for the transmission of arteries &c. on the superior orbital brim a hole or notch called the foramen orbitale externum superius for the passage of a principal branch of the 5th pair of nerves, the foramen opticum for the optic nerve and artery, the foramen lacerum an irregular opening for the passage of the 3^d, 4th, 5th and 1st branch of the 5th pair of nerves. In the middle region there are the cuneiform process of the os occipitis, the body of the os sphenoides, and the petrous portion of the ossa temporis, the styloid process is very long and projecting, and arises from the os temporis, the mastoid process arises on the outside, the zygomatic process also is in this region, under which the temporal muscles pass, there is also the foramen ovale for the passage of the 3^d branch of the 5th pair, the glenoid cavity for the articulation of the condyles of the lower jaw, the auditory tube for the passage of the air, and the meatus auditorius externus, or bony external orifice of the ear.

In the posterior region of the base of the cranium is the foramen magnum occipitale, through which the medulla spinalis &c. passes. —

D. Mitchell's Lecture. The 2^d Class of vertebrated animals. Birds. These are oviparous and biped. this science is called Ornithology. Birds have in their fore extremity a humerus, radius, ulna, metacarpus &c. the articulation between the scapula, clavicle, and ribs is very similar to the human body the sternum is very large and projecting, and connected by a very firm articulation to the ribs which have very little motion the length of the neck corresponds to the length of the lower extremities for obvious reasons. Birds have no pulvis, neither do they masticate their food, they have the power of moving the crystalline lens either forward or backward to see near or at a distance, also a membrana nictitans which they can close at pleasure they have very little cerebellum. the pharynx of birds end in an enlargement called the crop, which terminates in the crop or stomach, which contains a liquid, that macerates the food preparatory to its passing through a small portion of intestine into the gizzard, a strong muscular organ which grinds the food this organ in carnivorous birds is very weak. D. M. thinks that birds by instinct swallow stones to assist the trituration of their food, which is contrary to the opinion of Spallanzani, who supposed they were swallowed by accident. these stones are almost invariably found in the stomachs of granivorous birds.

D. Macneven's Lecture. Oxygen is found in all animal and vegetable substances, and in many inorganic substances.

Chlorine, one of the supporters of combustion, is an acidifying principle, and forms an essential part of sea salt. Chlorine differs from Oxygen in this, that it unites directly with metals, while Oxygen first oxidates them. Chlorine is the radical of Muriatic acid, which is a combination of Chlorine and Hydrogen - Chlorine is very heavy while Hydrogen is the lightest body known. Their relative weights are as 1 to 35.5. Fluorine is the basis of Fluoric acid, it must have flint in its combination to form the gas called vitrified fluoric gas which corrodes glass, and is made use of in the arts. Cover glass with wax and then draw or make out any design you wish in the wax, and then by adding the fluoric acid, it corrodes that part of the glass not covered with the wax. Fluoric acid is a peculiar base united with Oxygen. Fluorine is not oxy-muriatic acid, as some suppose but a simple substance. Dry muriatic of lime is the greatest absorbent of moisture known. Potash has great affinity for Oxygen, and consequently is made use of to separate it from bodies which contain it. It was supposed until a few years since that Oxygen was the only supporter of combustion and acidifying principle, but it is now found that there are three others. Iodine. Fluorine and Chlorine.

November 27th D. Post's Lecture. The middle part of the lower base of the cranium is formed by the sphenoids, in it is contained that substance called the pituitary gland. The 4 clinoid processes of the os sphenoides form the sella turcica, the middle lobes of the cerebrum are contained in this region. The posterior region is formed by a transverse line, and contains the two lobes of the cerebellum, there is a large foramen in it for the passage of the jugular vein, also the meatus auditorius internus for the 8th pair of nerves, the os frontis forms part of the orbit of the eye, the frontal ridge terminates in two processes called the internal and external angular processes. The parietal bones are of a quadrangular figure, and externally convex. The posterior part of the os occipitis forms the cruciform process which has sometimes given way under great weights carried on the head, causing immediate death, near this are the condyloid processes for the articulation of the atlas, in this region are foramina for the passage of the 9th pair of nerves.

D. Mitchell's Lecture. The backbone of birds is short and connected by ankylosis, the ribs have no cartilages, and they are very confined in their motion, the voice of birds is formed in the glottis, in respiration the air passes through the lungs into the bones giving them their specific lightness which is required in flying.

As they migrate and are subject to great alternations of temperature in the air, their blood is hotter than any other animal's, and they have the capacity of generating heat, and this is absolutely necessary in the act of incubation. Their Vestiture or clothing is divided into three sorts. 1st The penna or quill. 2^d The pluma or feather, and 3^d The barba or hair which immediately invests the body. There are always 10 feathers which arise from the humerus, and an indefinite number from the radius and ulna. these quills contain air.

November 29th L. Port's Lecture. The frontal sinuses are situated in the anterior part of the base of the os frontis, and communicate with the nares, whereby they are filled with air in order in severe cold the inflam. extends from the nares into the sinuses. these sinuses do not exist at birth but are formed at the age of six or seven years. worms are very often found in the frontal sinuses of sheep, but very seldom in man. The os Sphenoides is divided into three parts its body and two wings on each side, one large, and the other small. this bone extends from one bone to the other of the temples, the pterygoid processes of this bone form the boundary line of the nares behind. The os Ethmoides is a very spongy bone

and divided by the crista galli, which sustains the folds of the dura mater, the ethmoidal sinuses communicate with the nares

D. Mitchell's Lecture. The ovum of a bird is contained in the oviduct of the female, and consists of the following parts. 1st Testa or shell, which consists of carbonate of lime, and is full of little pores for the transmission of air. 2^d Membrana or membrane, respecting which there was a difference of opinion, Harvey maintaining that there was one only and Mayow that there were two, this immediately invests the shell. 3^d Vesica aerea or air bladder. 4th Albumen or a white, thick, gummy substance coagulable by heat, in which serves for a bed to the yolk, and protects from changes of temperature &c. 5th Vitellus or yolk, which is for the nourishment of the egg. 6th Chalaza or speck, where the ligaments unite to balance the different parts of the egg. 7th Poli vitelli or poles of the egg, ligaments extend from one pole to the other. 8th Germen or rudiment, not discernible until incubation has continued some time. 9th Punctum, as it is, or vital point, when the germen is discernible, and the heart begins to beat. D. M. says that the heart preexists before the brain, the most inviolable part of the body, the brain not very inviolable.

this also applies to man. 10th Embryo, Fetus, and Puer, the different stages of being of the chick during its incubation until its exclusion from the egg. —

D. Macneven's Lecture. Electricity consists in Attraction and Repulsion, or the power which bodies have in different degrees of Electricity of attracting or repelling each other. Bodies possessing the same state of electricity repel each other, while bodies possessing different proportions of the electric fluid attract each other, it being a natural law, that electricity like heat always tends to an equilibrium. To prove that bodies possessing different degrees of electricity attract each other D. M. made the following experiment, three metal bells were suspended to the receiver of an electrical machine, one of the bells communicated with the earth by a chain, which preserved the bell in its natural state, the other two being non conductors, received the electric fluid from the receiver, and the two being attracted by the middle one a ringing was made. Amber was the only electric body known to the ancients, the earth is the great source of electricity, where it diffuses itself, and preserves a state of equilibrium, there are various ways of exciting it a, by vicinity, or friction, which is the means generally used. Bodies excited are called electrics, and electrics are non conductors,

so called, because they do not convey electricity but retain it, as glass, sealing wax and others. Metals are good conductors as is water, whence the reason that electricity cannot be collected in a moist atmosphere, the bodies of animals are good conductors, owing to the quantity of fluid they contain. to retain it when collected, it must be separated from the earth by a non-conductor. To prove that bodies repel each other when equally electrified, suspend two or three feathers over an electrical machine, and they will hang together on account of their specific gravity, but electrify them and they immediately diverge from each other. There are two kinds of electricity, resinous and vitreous. Electricity when collected from the cushion is called Negative, when from the metallic tube of the machine, it is called Positive. Dr. M. says, that Chemical affinity is probably the effect of electric action.

November 30th Dr. Port's Lecture. When matter forms in the antrum Hygmoanum, the middle meatus should be opened to discharge it, sometimes fungus shoots out of this sinus and from the orbit, and it is generally incurable, worms are sometimes found in this sinus. The os nasi is convex externally and concave internally, connected by the transverse suture to the os frontis, to the os maxilla superioris by the nasal suture.

In operating on the fistula lachrymalis, if any resistance is made to the passage of the instrument it is a sign that we are grasping the nasal process, as the os unguis is very easily perforated. The form of the os maxilla is quadrangular they form the prominent part of the cheeks.

Dr. Mitchell's Lecture. Physiology of the Egg. Exciting power. 1st Sperma or fecundating liquor of the male, which fecundates eggs without which they would not hatch, though they are laid. 2^d Caloric which is applied in different ways, as by insulation in the ostrich which deposits her eggs in the sand to be acted upon by the sun. or Incubation. 3^d Compression of air, air is contained between the shell and membrane of an egg, which by heat becomes rarified and acts as a mechanical stimulant upon the parts of the egg. another use of the air vacuum is to receive and stimulate such air as may be injurious to the chick. 4th Nutrient by the intestines which nutrient is the yolk. 5th Oxygen which is absorbed by the pores of the shell. Dr. M. produced a book of 1849 published in 1881 by which it appears that he was the discoverer of oxygen, and of its being necessary to the existence of animals. Birds turn their eggs once in 24 hours, that they may be supplied with vital air. Eggs will

not acted in azotic gas, nor when deprived of atmospheric air. Dr. W. says that Azote is taken into the circulation of animals, and that it is a *nutritum vite*. 6th Nutrient by the mouth, which is the albumen, which is taken in nourishment after the yelle is consumed, and the bill formed.

Dr. Macneven's Lecture. Two of the effects of electricity are light and combustion. it produces a cold current of air, water is rendered luminous by it, and alcohol is ignited by it. There is a great analogy between electricity and Caloric, as they are contained in all bodies, and excited by the same means as friction, and both travel with great velocity. it has a smell which heat and light have not it acts with more energy on account of the dryness of the atmosphere in winter than in any other season. it accelerates fluids in capillary tubes, as is proved by the following experiment. Put a vessel containing water on an electrical machine, it should have such an opening, that the water should drop slowly, then electrify it, and the water will run a stream. Electricity promotes perspiration and evaporation, and quickens the circulation, hence the reason why in damp weather when there is little electricity our bodies are so languid.

December 1st Dr. Post's Lecture. The bone of the lower jaw has two processes called the coronoid and condylar, the anterior is the coronoid, the posterior the condylar, which are curved and are received into the glenoid cavities of the os temporis. There is an interarticular cartilage in this joint. Dislocation of this joint takes place anteriorly, to reduce it, the jaw should be drawn forward to disengage the process, In fractures of this bone in children, two silver plates should be applied to the inner and outer side of the jaw to prevent motion. The teeth of animals differ very much in size, situation, and number. The teeth of man are divided into incisors, cuspidate, bicuspidate, and molars.

Dr. Mitchell's Lecture. The anatomy of birds is divided into parts nude, and tecta. The naked parts are Rostrum, Beak, Gena, cere, surrounding the nares, Nares, nostrils, Lingua, tongue, Front, forehead, Facies, face, Gena, cheek, Tempora, temples, Oculi, eyes, Palpebrae, eye lids, Galea helmet, in some birds, Pes, including the whole limb from the head of the femur. The covered parts are Vertex or Scapula, Caput, head, Vertex, top of the head, Occiput, Caput, margin of the bill, Crista, crest, Collum, neck, Alae, ears, Truncus, trunk, Dorsum, back

Pector, breast, Abdomen, belly, Anus, Upper extremities, as
 also, wings, which are divided into *Impennes*, or wings destitute
 of those feathers which are for flying. *Pinniferae*, to assist in
 swimming, and *Pinnata* or wings for flying—

December 2^d Teeth are composed of two parts, Bone and Enamel.
 They are divided into body, base, neck, and fang. They possess but
 little vitality, their enamel none, the enamel is very hard to
 resist friction, the bone of teeth is likewise much harder than
 other bones, and when once colonised with matter always re-
 tains the colour which other bones do not. They are lined with a
 membrane covering the artery, nerve &c of the tooth, this mem-
 brane is the seat of pain, Teeth are sometimes united by anony-
 lous to their sockets. Dr. Post considered the different forms
 and situation of the teeth—

Dr. Mitchill's Lecture - Ornithology. Birds or birds divided into
 6 Orders. Linnæus. Cuvier

- | | | |
|---------------|--------------------|--------------------------------|
| 1. Accipiter. | * Ciscans de prey. | Birds of prey. |
| 2. Picæ. | " Grimpeurs. | " feet for creeping. |
| 3. Papæus | " Papæours. | " Living upon seeds & insects. |
| 4. Gallina | " Gallinacés. | " " " " fruit. |
| 5. Gralla | " Echafœurs. | " feet for wading. |
| 6. Naucos | " Nageurs. | " " " swimming. |

Dr Macneven's Lecture. Nitrogen is an elastic and combustible gas, and composes $\frac{1}{5}$ of the atmosphere, its specific gravity is less than atmospheric air, it differs from other gases in not communicating any acid taste to water, the processes for obtaining it are various, its two great sources are the atmosphere and animal matter. with Oxygen it forms nitric acid, it is unfit for respiration or combustion, it may be obtained from burning phosphorus in common air, for it will absorb all the oxygen and the residuum will be Nitrogen, or as it is sometimes called and always by the French Azote. Dr. Mitchell says that it is a pabulum vite, and enters the circulation which is contrary to the opinion of philosophers who say that it is received into the lungs, with the air, but immediately thrown out as something deleterious, it is however, a constituent of all animal matter.

December 3^d Dr. Mitchell's Lecture. The genera of birds can be determined by the form of their skulls &c. Order *Marines*. Genus *Procellaria* a Petrel, a web-footed water fowl, bill toothless, upper jaw or mandible aduncous, feet palmated. Genus *Diomedea*, a Albatross, short bill, upper mandible hooked, lower one truncated, nares oval, and lateral.

Genus *Rynchops*, or Shearwater, a projecting bill, the upper mandible shorter than the lower. Order *Picæ*. Genus *Buceros*, or Hornbill, bill convex and bent, nearly part of the head, long, gibbous, and naked, near behind the base of the bill. Order *Psittacæ*. Genus *Trochilus*, or Humming bird, the upper mandible shut lying within the lower.

December 4th Dr. Mitchell's Lecture. Wilson the American Ornithologist divided Birds into Land birds, and water birds, or waders, and web footed water fowl. The land birds include the 4 orders of Linnaeus, viz, the Accipitres, Picæ, Psittacæ, and Gallinæ, and the water birds the two remaining orders of Linnæ, and Anseres. The land birds were divided into the following Genera

Genera

Buteo or *Buteo*.
Falco, including the hawk family.
Strix, owl, night birds of prey.
Lanius - Butcher bird.
Osittacus, Parrot.
Corvus, Crow.
Prion, Hanging birds.

Genera

Gracula, Black bird.
Cuculus, Cuckoo.
Picus, Wood pecker.
Sitta, Nuthatch.
Alcedo, Kingfisher.
Certhia, Creepers.
Trochilus, Humming bird.

Genera

Sturnus, Starling.

Turdus, Mockingbird.

Amphelis, Chatterer.

Loxia, Cross-bill.

Coccothraustes, Cross-bill.

Emberiza, Bunting.

Tanagra.

Fringilla, Finch.

Sylvia, Blue-bird.

These Genera include all the land birds of Wilson.

Genera

Mandula, Lark.

Pica.

Parus.

Hirundo, Swallow.

Caprimulgus, Goat-sucker.

Columba, Pigeon.

Meleagris, Turkey.

Tetrao, Pheasant & Quail.

D. Macneven's Lecture. Astringents. Acetate of lead is given internally in hemorrhage, menorrhagia, diarrhoea. Those who work in it are subject to colic, palsy, and vertigo, in hemorrhages of the uterus, where it is not impregnated, in the last stages of dysentery, and cholera infantum, there is more danger in giving small doses, than large ones, which act promptly. Alum is given in hemorrhage, hemoptysis, leucorrhoea, diabetes, menorrhagia, and externally applied to sore eyes.

The Muriate of Barytes is given in scrophula, and cancer, the Carbonate of Barytes is poisonous.

Aqua calcis contains about a grain of lime in an ounce of water, it is tonic and astringent, is applied externally in a scotch, and burns combined with oil, lime water and milk is given in an irritable state of the stomach, in dyspepsia, dysentery, and chancre. Oxygen is very irritating to sores. Muric acid of lime mitigates but never cures scrofula.

Creta preparata is given in the dysentery of children. whenever the stools are green, it is an evidence of an acid being present.

The Mineral acids are all tonic. The Sulphuric acid is astringent, and strengthens the stomach, is given in cutaneous eruptions. the concentrated sulphuric acid should never be given, as it contains the sulphate of lead.

The Muratic acid is used as a gargle in putrid sores of the mouth.

The Nitric acid is given in the secondary stages of syphilis, chronic hepatitis, and glandular diseases, also used as a wash for scrofulous sores.

Tonics of the Animal Kingdom: Phosphorus is given in the worst cases of typhus fever, and where there is great prostration of the vital forces.

Gelatin is another animal substance it is contained in peruvian bark, but not in other medicines which led many to suppose, that it was the acting principle in bark, and they accordingly gave it in intermissions.

December 6th Dr. Mitchell's Lecture.

3^d Class of Vertebrated animals. Amphibia. The science is called *Croquetology* from *Croquetos* a reptile. These animals have cold blood passing either through the aortal circulation while they are under water, or through the lungs, which extend far down into the abdomen. Their skins are either scaly as in lizards, bony like the tortoise, or naked as in frogs. They have but very little brain, but their nerves are extended extensively over the body. Tortoises will live a fortnight after decapitation, and the heart will beat a long time after separation from the body.

Linnaeus has divided them into 2 orders. *Reptilia* or those which have feet, and *Serpentia* or those without legs.

Order *Reptilia*

Order *Serpentia*

Genus *Testudo* or Tortoise Genus *Crotalus*, or Rattle snake

" *Draco* or Dragon

" *Boa*

" *Lacerta* or Lizard

" *Coleura*

" *Rana* or Frog

" *Anguis*, or Worm

" *Amphisbana*

" *Cecilia*, or Blind snake

Swiss divided them into 4 Orders. 1st *Chelonians*, Tortoises
2^d *Saurians*, Lizards. 3^d *Ophidians*, Serpents. 4th *Batrachians*.

December 8th I. Mitchell's Section. Order 1st Reptalia,
Genus Testudo, or Tortoise which have a horn covering. this genus
is divided into 3 Sections

1 Section - Marina or sea tortoises with legs like fins.

2 " Fluviale, or river tortoises with membranes for swimming.

3 " Terrestres or land tortoises.

Genus Rana, including the toad and frog. 4 Sections.

1 Sect. Bufones, or toads, with warty bodies.

2 " Rana or frogs with smooth bodies.

3 " Hyla or tree frogs with feet by which they can climb a plane of glass.

4 " Caudata, or those frogs which have tails, of this section there
is only one species called the rana paradoxa. In this genus
metamorphosis does not take place in the body of the female, the
eggs hatch into tadpoles, which afterwards become frogs.

Genus Draco, or Dragon, one species only the Draco volans.

Genus Lacerta or Lizard, scaly and with four legs. 10 Sections

Sect. 1. Crocodili, segmented tail. 6. Chameleons, change colour.

" 2. Caudata, scaly bodies.

7. Serpes, collar round the neck.

" 3. Linguana, furry bodies.

8. Lacerti, streaked bodies

" 4. Salamandra, clawed feet.

9. Scinps, with imbricated scales.

" 5. Gekkonos, warty bodies.

10. Calceida.

Genus Proteus. this genus has both lungs and gills.

L^r Macneven's Lecture. The contractility of the stomach is
lost by over distention, the act of vomiting cannot be com-
plete without the cooperation of the diaphragm, the liver, gall
bladder, and other abdominal viscera are compressed and acted
upon by the irritation of emetics, there is a great sympathy
between the stomach and other parts, through the medium of
the nerves, by the par vagum. Emetics produce a more
copious secretion from the glands, and also affect the skin.
There is a reciprocal action between the skin and digestive
organs. In the administration of Emetics, particular regard
should be had to the idiosyncrasy and nervous suscepti-
bility of the patient. where we wish emetics to make a strong
impression on the system, no drink should be given. Emetics
are given in nausea, bitter taste in the mouth, carotidgia, conti-
nued fevers, in typhoid fever, dysentery in hot climates &c.
they are improper in plethoric habits, or if given, depletion
should be premised, or dangerous consequences might result
from their administration, such as Apoplexy, rupture of blood
vessels &c. Vomiting is to be checked according to its urgency by
the following remedies, opium pill, burnt brandy and sugar, wa-
rmomentations, sinapisms, blisters, and Aconite by opiate
injections.

December 4th Dr. Mitchell's Lecture. Ichthyology.

11th Class of Vertebrated Animals. Pisces, or Fishes.

Fish breathe through gills, the air is contained in the water which is received in the mouth, and ejected by the branchial arches. Fish have cold red blood, and a single heart, an artery runs from the heart to the gills, their alimentary canal is very similar to that of man, they swallow their food whole and have generally no grinder, they have an air bladder which they have the power of dilating or compressing, whereby they can float or sink. Fish are divided into bony and cartilaginous, they have like birds one common outlet for their excretions and eggs. The fins of fish are divided into pectoral, dorsal, ventral, caudal, branchial and anal fins.

Dr. M. says that air is frequently secreted in different parts of the human body, as in the bladder &c.

Dr. Macneven's Lecture. The atmosphere is a thin, transparent, elastic, and invisible fluid, its physical properties are its weight and elasticity, it is the pressure of the atmosphere which retains fluids in their situation, every cubic inch of our bodies sustains $14\frac{1}{2}$ lbs of atmospheric pressure, it is counterbalanced by the air which is contained in our bodies, the pressure of the air was first discovered by Torricelli in 1643. The concussion of

the air in the rushing pump is explained by the pressure on the air being removed. The mean pressure of the atmosphere is equal to 30 inches, and varies but little. The Barometer rises on mountains which is the consequence of its sustaining a less column of air. Heavy and light bodies fall to the ground at the same time in an exhausted receiver, as was shown by a cent and a piece of cotton, the attraction to the earth being the same in both bodies. The great pressure of the atmosphere shows why our bodies are so affected by changes of weather &c.

December 10th Dr. Mitchell's Lecture. Fish have small brains, eyes situated on opposite sides of the head. Dr. M. says that he thinks that we see with one eye only, and says that the cornea of one eye is always more protuberant than the other. He mentioned two instances of persons losing the sight of one of their eyes without their knowledge, and accidentally discovering it, one person was his mother. Fish have organs of hearing water is an excellent medium of sound, and sounds are conducted much farther on the surface of water than more by through the air, as has been proved on lakes the taste and touch of fish are not acute, their tongue is often beset with teeth. The senses are in pairs, and the organs of generation are in the male two testicles, and in the female an ovary.

In a large cod fish half a million of eggs have been counted. Fish are animalivorous, and the same species feed on each other. they are oviparous, the female deposits her eggs in the sand and the male afterwards bedews them with sperm. Fish are divided into 2 Classes Bony and Cartilaginous. The bony are divided into 4 Orders, which are distinguished by their ventral fins.

Order 1st Apodes, no ventral fins.

" 2nd Squalae, ventral fins on the throat.

" 3rd Thoracica, " " " " Breast.

" 4th Abdominales, " " " " Belly.

D. Macneven's Lecture. The Barometra varies from 29 to a little over 30, at the top of the Andes which is 3 miles in height the barometra rises to 10⁶⁶/₁₀₀, and hemorrhages occur. The atmosphere extends 40 miles above the surface of the earth, which is known by the rays of the sun being reflected at 40 miles above the earth. Air is never completely exhausted by the air pump but only rarified, it is very buoyant, and it is owing to this property that some substances float, and birds fly. every body displaces a quantity of air proportioned to its volume as air rarifies and parts with its caloric it grows cold, as is proved by a thermometra placed in the receiver of an air pump. The elasticity of the air is proved by the following experi-

ment. Place a bladder which contains a small quantity of air, and which of course is collapsed into the receiver of an air pump, and then exhaust the air, you will observe that as the air is rarefied in the receiver the air contained in the bladder will expand it to its full size, afterward admit the external air, and the bladder will immediately collapse to its former shrunken state.

Dr Michill's Lecture

December 11. 2^d Chap Cartilaginous Fish. Order 5th Chondropterygous, with cartilaginous fins as the shark &c. Order 6th Branchiostegous with covered gills. Specimens of Fish. Order Aphodes Genus *Merana*. Species *Unguilla vulgaris*. common eel, no ventral fins, body cylindrically roundish and smooth. - Order Squalus Genus *Gadus* or cod. Species *Gadus callarias*. the rock cod of N. York of a variegated colour, Species *Gadus tomcodus*. the tomcod. Order Pectoral. Genus *Labrus*. Species *Labrus tautoga*. the tautog or black fish. with sharp teeth.

Dr Macneven's Lecture. Mercury will pumete the pores of wood by placing it on the top of an exhausted receiver, owing to the compression of the external air. it will descend through the receiver in a shower. Water will rise 33 feet by the pressure of the air, the entry of air into a vacuum causes an explosion, as is proved by a bladder over an exhausted receiver, and puncturing it.

Emetics prepare the way for other remedies, and are applicable in almost all fevers, particularly in those of hot latitudes, they are generally connected with a diseased state of the stomach. emetics break the chain of morbid association, there is a difference of opinion respecting their applicability in malignant fevers. D. M. has found spirits of turpentine very beneficial in puerperal fever in the dose of half a wine glass full. it excites evacuation by stool and perspiration. Menstrual blood is not pure blood but a secretion from the womb, it does not coagulate when clough comes on very suddenly it is spasmodic, when gradually inflammatory, emetics are applicable in both, they are given in chronic affections of the breast, particularly in peripneumonia notha, in spasmodic, and humoral asthma, the sulphate of zinc is given in pertussis, they are given in dyspepsia, foul state of the stomach, chronic diarrhea, dyspsies, tic douloureux, mania and hania humoralis, and in some nervous diseases which originate from a diseased state of the stomach.

December 13. D. Macneven's Lecture. Hydrogene is a permanently elastic, invisible gas, and the lightest of all bodies 18 times lighter than oxygen, it is an acidifiable combustible, in its most simple state it is combined with caloric and electricity, and cannot be separated from caloric except by affinity. by mixing two volumes of oxygen and one of hydrogen and passing the electric

shock through them the gases detonate and form water which is of the weight of the gases, all inflammables exist in a state of positive electricity, oxygen exists in a state of negative electricity; more oxydable bodies occupy the positive pole of the voltaic apparatus. Hydrogen exists largely in vegetable and animal matter, it can be procured from iron filings or from zinc by pouring on acids much diluted, as a proof that the hydrogen is obtained from the water, the acid remains not at all diminished after the process; it is inflammable only when added to some combustible when an intense heat is produced, in respiration it is negative, and is not absorbed by water, it unites with oxygen in one proportion. Hydrogene unites in a determinate proportion with iodine, and chlorine, forming hydroiodic, and hydrochloric acids.

December 14. D. Macneil's Lecture. The constitution of the air, as high as has been examined is the same. Hydrogen is the gas made use of in balloons. Atomic Theory. All simple and compound bodies unite in definite proportions, for instance Minute of Soda whether obtained or made by artificial means exists in determinate proportions, the elements of bodies are unchangeable and the ultimate particles of bodies are hard and minute if it were not so matter could not exist, in compound bodies

each particle is composed of an atom or atoms of the compound. Bodies are never in actual contact, it is proved by bodies being conducted by cold, showing they were not in contact. 100 parts of sulphur and 100 of oxygen form Sulphurous acid, 100 of sulphur and 150 of oxygen form Sulphuric acid. The Atomic Theory or doctrine of definite proportions was established in 1804 by Dalton, and since that has been received by all Chemical Philosophers. The only thing assumed in this doctrine is, that bodies are resolvable into atoms. Alkalies are acid and turn vegetable blue green, Acids are sour, and turn vegetable blue red.

December 15. Dr. Mitchill's Lecture. Phytology, or Botany, the second great division of organized and animated beings. Vegetables are apathetic, they possess motion, but no nervous system, consequently no feeling. Dr. Percival says that they have feeling and perception, they are destitute of local motion and take their food by intussusception, their nourishment is taken in two ways, from the earth through the medium of water, and from the air, some vegetables live underground as some of the order Fungi, some float on the water, and some between land and water. Fungi grow on a foot stalk, some of this order are called parasitical plants, and derive their subsistence from other plants, whence the word parasite is derived. The

mould that grows on bread and other substances is a species of the parasitical kind. The Vegetable World is divided into 7 great natural families viz -

- | | |
|--|-----------------------------------|
| Family 1 st Fungi, Mushrooms. | 5 th Gramina, Grasses. |
| " 2. Alga, Algae. | 6. Palmae, Palms. |
| " 3. Musci, Mosses. | 7. Plantae, Plants. |
| " 4. Filices, Ferns. | |

D^r. Macneven's Lecture. Emetics. Ipecacuanha is a mild and effectual emetic, and more certain in its operation than the minerals, there are three kinds, the grey, brown and white the grey is the best, its greatest activity is in the resinous part and it operates almost as well in small doses as in large, it determines to the surface, and is given in febrile diseases, chronic dysentery, asthma, and haemorrhages. Tartar Emetic is emetic, purgative and diaphoretic according to the dose in which it is given, a solution of tartar emetic should supersede antimonial wine it is given in exanthematic affections, and in injection in 8 or 10 grains in cases of obstinate constipation, and in tetanus, as an antidote the extractive matter of vegetables which decomposes it. Turpeth Mineral in a dose of 6 or 8 grains in swelled testicles. Sulphate of Zinc is a prompt emetic, and is given in hooping cough, and when poisons are taken.

December 18. Dr. Mitchell's Lecture. Fungi grow by a single foot stalk, and are the lowest in the scale. Musci have a stalk containing seeds at its end. Filices bear their organs of generation on their back, remedy for tania. Graminae, their peculiar character is a long stem called culm, hollow, and divided into joints, of these there are barley, rye, and wheat &c. called cerealia. Palmæ have a single stem without branches but leaves, they grow under the tropics. Cocoa and Sago are obtained from the palm. Plantæ, comprising all those vegetables not included in the six preceding divisions. Plants are divided into 4 Orders, the orders are mostly arbitrary.

- Order 1st Herbaceæ, those that die in the winter down to the roots.
- .. 2. Frutices, Shrubs of small size as the Lilach.
 - .. 3. Subfrutices, Underbrush, as the cream berry &c.
 - .. 4. Arborea, Trees, all those vegetables larger than the Frutices.
- They are also divided according to their duration into
- 1. Annual, or those which live only one year.
 - 2. Biennial, or those which live two years, as the pansy &c.
 - 3. Perennial or those which do not die, as the trees.

Dr. Macneven's Lecture. Sulphur is generally obtained from the neighbourhood of Etna, also from Pyrites which is a combination of sulphur and iron, the sulphur is sublimed by

heat, Sulphur does not change from exposure to the air, and is insoluble in water, when it is heated so as to ascend it forms the fumes, and when melted it casts in crystals, it is soluble in Sulphuric ether and in oil, it burns with a pale blue colour with a suffocating smell. Sulphur when formed into Sulphurous acid increases in weight, owing to the Oxygen which it receives. Sulphurous acid contains 100 parts of sulphur and oxygen Sulphuric acid contains 100 parts of sulphur and 150 of oxygen Sulph. a.c. turns vegetable blues red, and afterwards destroys the colour as Iodine. $\frac{1}{2}$ volume of oxygen and 1 of hydrogen forms water, it takes 1 volume of sulphurated hydrogen and $\frac{1}{2}$ of oxygen to produce combustion. The specific gravity of sulphur and oxygen is 1,111. Sulphurous acid is converted into sulphuric by heat, as the water which is lighter than the acid evaporates. Sulphuric acid is colourless, of a glutinous consistence, and nearly twice the weight of water. Sulphur is 16 times heavier than hydrogen.

December 17. D. Mitchell's Lecture. Vegetables are divided into Indigenous, or those found at the settlement of the country. Exotic, or those introduced into a country. Circumstanced, or those exotics which become naturalized, and thrive in the soil in which they have been transplanted.

Vegetables consist of three great parts, Radix or root, Truncus or trunk or body and Fructificatio or organs of fructification. The Radix gives fixity to the vegetable, and is the medium of nourishment, water is indispensable to the support of plants. The Truncus is naturally perpendicular, and has an inclination to the sun, from the trunk are obtained by different processes, Cork, gum, resin, turpentine, tar, pyroligneic acid, and potash. The organs of fructification, or the apparatus of vegetable generation, consist of the seed and their appendages. Vegetation ends where Fructification begins, for where a flower blooms that part never grows afterwards, but the growth is from other parts.

D^r Macneven's Lecture. Sulphuric acid formed by burning Sulphur. Sulphas. Potas. is a neutral bitter salt, and crystallizes in small six sided prisms it fuses in a strong heat, boiling water takes up $\frac{1}{2}$ of its weight, it consists of 45 parts acid, and 55 base of charcoal decomposes it and forms the Carb. Potas. The Sulphas. Sod. contains 54 acid and 46 base. it is very bitter, and more soluble than Sulph. Potas. Sulph. Barytes is made by adding sulph. ac. to any Barytic salt, or to water containing Barytes, it takes 43,000 grains of water to dissolve 1 grain of Sulph. Barytes.

It is decomposed by 3 or 4 times as much potash, boiled in a strong iron vessel, which forms Carb. Potass. Powdered Sulphate of Barytes is also decomposed by Charcoal. Sulphate of Lime consists of 49 acid, and 51 base. it contains water, therefore fuses in a strong heat, it is decomposed by Carbonated Alkali, and Charcoal Sulph. Magnesia or Epsom salt contains 87 acid, and 33 base. Sulph. Alumenis is a an astringent salt, of a sweetish taste.

December 18. Dr. Mitchell's Lecture. Botany is divided into three parts

- 1st Philosophical Botany, or the Anatomy & Physiology of Vegetables.
 2. Systematic " " " Arrangement & Classification.
 3. Medicinal, Dietetic, and Technical. the first their virtues as remedies, second, as diet, and the last, their virtues in manufactures as tanning and dying.
- 1st Philosophical Botany, The Anatomy of Vegetables. The Germ or punctum vitale of vegetables is of 5 sorts, 1st Semen or seed, the fructus of vegetables, contained within the seed, and preceded by a blossom.
- 2^d Germ, or bud, growing at the side or end of a branch to protect it from cold, that is the infant germ.
 - 3^d Bulbus or bulb, inclosing the germ in concentric layers, as in the onion, it is called bulbis acutum, because it protects from cold.
 - 4th Caudex, or tree, from some vegetables having holes, of some reason

Plumae to an eye, with a radical germ
or root, as the potatoe.

3th Succulus a shoot, a germ without
a root, excrescences growing on the trunk
of trees, sometimes called suckers, because
they draw nourishment from the branches

Botanical Markers.

Annual 0

Biennial 8

Perennial 4

Shrubby 2

Climated S

D^r Macneven's Lecture. Cathartics increase the peristaltic
motion of the intestines. Some Physiologists have supposed that
the sensibility of the intestines increases from the stomach down-
wards. Purgatives extend their effects to the abdominal viscera,
diminish the circulation, and loosen the fluids. Depletion from
any part causes an efflux of humours to the part. the first action
of cathartics is stimulant, their remote effect, sedative, during
their use dilute freely. in hypercatharsis, the best antidote is
the warm bath, with opium in a solid form. they are given in
bilious remittent fevers, continued inflammatory fevers, typhus
repeated every two or three days, in exanthemata, as measles &c, in
erysipelas, copious purging, watery solution of opium to allay the itch-
ing, in scarlatina, cold affusion, even in winter, active cathartics in dys-
entery in acute diseases of the head, palsy, hydrocephalus, hepatitis,
choera, epilepsy, turning nascentum, hysteria. In mania purging
purgatives combined with tart. emetic. should be given.

December 20. Dr. Mitchell's Lecture. Seeds are divided into.

1. *Pericarpium*, outer coat, as the pod of a peanut.
2. *Membrana*, inner lining, in contact with the seed.
3. *Fovea*, a pecture for the admission of air, water, and nourishment.
4. *Hilum*, cicatrix or scar, whereby the seed was attached to the plant.
5. *Cocculus*, point of life, the incipient plant.
6. *Plumula*, fetal plant resembling a feather, attached to the *Cocculus*.
7. *Rostellum*, the root which turns downwards.
8. *Cotyledon*, vegetable yolk, and white, furnishing nourishment.


Vegetables retain their vitality for a great length of time, the only certain proof of animal or vegetable life being extinct is the commencement of the putrefactive process. The great length of time which vegetables retain their susceptibility to be acted upon by their natural stimuli has given rise to the theory of Quivereal Generation. The case of Dr. Tennant whose funeral was delayed for two days through the intercession of a friend was a strong instance of suspended animation without the extinction of life, he recovered and lived many years.


Dr. Macneven's Lecture. Sulphur combines with alkalis, and forms sulphurets, which were called hepar from their colour being similar to a liver. Sulphur and Lime heated have the power of absorbing light, and emitting it in the dark. Sulphurets emit a bad smell, have an acid taste, and are decomposed by all



the acid, the sulphur precipitating, and the acid uniting with the alkali. From dilute manganic acid on one of the sulphurets, and sulphureted hydrogen gas is liberated, this gas smells very offensive and is inflammable, is combined with oxygen or atmospheric air, it inflames with combustion it burns, metals, and alcohols, white paint, it is absorbed by water and water saturated with this gas reddens vegetable blues, and if exposed to the air a pellicle is formed on the surface. Sulphuretted hydrogen gas precipitates all the metallic oxides except cobalt and a few others hence its use as a test in discovering poisons. It changes water containing essence of a dirty yellow colour, and if tart. emet. an orange red colour. Sulphurets can only be kept in a dry state, for if they are exposed to moisture, hydrosulphuric acid is formed.

December 21. Dr. Mitchell's Lecture. Seeds are divided into several kinds relative to their Cotyledons or lobes.

- 1st Acotyledons, plants without cotyledons or lobes.
2. Monocotyledons, those with one lobe.
3. Dicotyledons, having two lobes.
4. Polycotyledons, having more than two lobes.

Acotyledons, without tender, structure cellular, destitute of fibres and pith. vessels scarcely visible, as the families of the Fungi, the Musci, Filices and Algae. they are represented by  showing the cellular structure and the vessels scarcely visible.

Monocotyledons, trunk vascular and fibrous, vessels and fibres in bundles, is shown in this representation, the dots showing the vessels, and the intermediate space the pith which is distributed among the vessels.  to this division belong the Graminae and Palmae.

Dicotyledons, comprising all vegetables with the Polycotyledons, not included in the two former divisions, trunk vascular and fibrous, vessels and fibres in concentric rings, surrounding the central pith as is shown in the following representations  .

Vegetables secrete milk and sugar during their germination, as the cocconut and barley. Sometimes animal sugar is secreted as in Diabetes. Beer and ale made by the following process, when the barley begins to germinate it is exposed to heat and dried, and is then called malt, this malt is ground and water added, which forms sweet wort, this wort assisted by heat and moisture takes on the vinous fermentation, to this are added bitters as hops, and sometimes even aloes and opium.

Grain put in a fermenting state by heat, or the vinous liquor added upon by the same process produces acient spirits, the process called distillation. this spirit is a menstruum for resinous substances and mingles with oils, the effects of acient spirits very pernicious.

D. Macnevin's Lecture. Phosphorus is a simple substance, and is obtained from the calcination of bones. the process is the following Calcine the bones untill the animal matter is consumed, then to an

100 parts of them pulverised add 40 parts of strong sulphuric acid with 4 times its weight of water. Mine when putrescent and dried affords a little phosphorus. Phosphoric acid is formed by the union of phosphorus with oxygen, it has all the properties of the acids. Chlorine gas supports the combustion of phosphorus, it is dissolved by Alcohol and oil, is luminous in the dark, and melts under water at the temperature of 108° . It is a violent stimulus, and unfit to be used as a medicine. Phosph. ac. has the properties of dissolving readily in water, of not being decomposed by heat alone, and of forming neutral salts by its union with acidifiable bases, as the phosphate of soda, it consists of $48\frac{72}{100}$ base and of $53\frac{28}{100}$ oxygen. Phosphates are soluble in the nitric, and muriatic acids, and then decomposed by lime and ammonia. Phosphuretted hydrogen burns when it comes in contact with atmospheric air, this accounts for the lights seen in churchyards, which a barrel with this gas. Phosphorus is sometimes given in the dose of $\frac{1}{3}$ of a grain.

December 23. Dr. Mitchell's Lecture. Offspring layers to seeds of 1st *Perisperm* a layer to moisten the seed. 2^d *Stipula* a stem. 3^d *Ala* a wing. 4th *Mucosa* must, the hard substance covering the seed.

Chemical analysis of the Monocotyledonous grain, wheat the moist way or by putting it in water.

- 1st *Pellicula* or scum, a brand rising on the top
- 2^d *Mucilago*, a mucilage, which turns sour and becomes vinegar.

3^d Gluten, a paste, which also rises to the top.

4th Amylum, starch, or fecula, which is insoluble, and remains at the bottom.

Mechanical division of wheat, by grinding and bolting into flour a meal consisting of the two following parts.

1st Pulvis, or Flour, the powdered part.

2^d Tupper or bran, the husky part. } Theory of making bread

1st Azymic, or unleavened, made of water and grain, the air excluded from the water gives this bread considerable stringiness.

2^d Zymic or leavened which is made light by yeast. In the fermentation of wort a great deal of carb. ac. gas which is the heaviest of the gases remains on the top, which is called barm or yeast leaven or emptyings, causing fermentation when added to the dough this fermentation is immediately stopped by the process of baking.

Turnpike leaven or dry yeast is made in the following manner.

To meal of maize add water, some hops, sweet herbs or pumpkins, then apply a proper degree of heat to make it ferment, while fermenting add more maize then knead it until it becomes stiff. afterwards dry it gradually in the sunshine, and make it into sticks, by moistening it any time afterwards, it will cause fermentation. Maize and rice are deficient in mucilage, which is the reason why they do not make good bread. Coffee stimulates the nervous system without exhausting it, and is very refreshing it strengthens digestion.

L. macer is destine. Laxative, V.C. Ucin. The oil is obtained from the seeds either by boiling when the oil floats, or by compression. The last is the best, when this oil grows rancid it changes colour, its action is mild and mild and is given in the febrile stage of dysentery, cholera infantum, tarrina, fulis, to bring in women, its taste is disguised with by peppermint water or sugar. This oil acts, near as, well, and is purgative where prisons have been taken.

Flower of Sulphur in the dose of $\mathfrak{z}\mathfrak{i}$ or $\mathfrak{z}\mathfrak{i}\mathfrak{i}$ is a mild laxative, it acts upon the large intestines, useful in chronic rheumatism.

Magnesia is a simple earth, and acts as a laxative whether it meets with an acid or not which is not the case with the other earths, it is chiefly obtained from sea water, the calcined is preferable to the carbonated. It should not be combined with Sulph. Tart. Potash. Carbon or charcoal absters, costiveness, and is a powerful antiseptic. in dyspepsia a table spoonful twice a day, in putrid ulcerations of the fauces, in putrid discharges in dysentery, the charcoal has the same effect, putrid ulcers, and burnt it is the best colicific. The Neutral salts are useful laxatives in febrile affections, and in diseases of the head.

Cathartics. Rhubarb in a dose of $\mathfrak{z}\mathfrak{i}$ or $\mathfrak{z}\mathfrak{i}\mathfrak{i}$ is an effectual cathartic and its operation does not create a feverish disposition.

R. Whet is an excellent remedy in dyspepsia. Rachi Jalapa its activity depends on its resin. a very effectual purgative in dyspepsia is a combination of Jalap and Cream Tartar.

Lesson 24. Dr. Mitchell's Lecture. The anatomy of a vegetable trunk is exemplified in a section of dicotyledonous plants.

- 1st Medulla, with the central part, softer than the rest.
2. Lignum, wood proper, complete wood, timber.
3. Alburnum, sap wood, incomplete wood.
4. Cambium, inner bark, that which supplies new bark when damaged.
5. Libra, inner bark, used formerly to write upon with a style.
6. Cortex, bark proper, used in manufactures and in pharmacy.
7. Epidermis, cuticle, covering to protect the trunk.

Animal skins are prepared for tanning by maceration, the tannin of the bark unites with the gelatin of the skin.

The several kinds of the trunk are the following. viz.

- A. Caulis, trunk supporting the leaves and flowers.
- B. Culmis, culm, peculiar to grasses.
- C. Scapus, trunk supporting fructification.
- D. Pedunculatus, footstalk, supporting fructification.
- E. Petioles, footstalk supporting the leaves.
- F. Trons, a species of trunk, a substitute for branches.
- G. Stipes, the base of the frond.
- H. Ramus, branch, subdivision of the trunk.

Dr. Macnevin's Lecture. Carbon or Charcoal when pure is without taste or smell, and in the most concentrated state has no effect on

When air is excluded. Diamonds consist of indurated carbon, and possess great refractibility, and are very combustible. Carbon absorbs all the acids the lower the temperature, the greater the absorption, for heat increases the elasticity. the absorption depends on the porosity of the wood, furnishing charcoal. Carbon forms the greatest part of animal and vegetable matter. It is found imbedded in the earth, and is then called coal, and is obtained from pitch, resin, and oils. when impure it contains hydrogen, and is of great use, as fuel, for converting impure water, and smelting metals, mixed with iron it forms steel. Carbon burnt in oxygen gas converts it into carb. ac. gas, and is of the same volume and weight, that the oxygen was, this gas is called choke dam on account of its suffocating quality, and is found in low places as wells &c. it is a poison, and unfit for respiration or combustion. It is obtained in large quantities from chalk and marble by the acids, its specific gravity is much greater than atmospheric air, and on this account it can be hurried from one vessel to another the same as water, immediately displacing the atmospheric air by its greater gravity. it immediately extinguishes flame.

Escomba 27. L. Mitchell's lecture. Fulcrum or appendages of Vegetables sometimes called prophylls, consisting of -

1. Stipula, an appendage to the leaf or footstalk supporting the leaf.
2. Bractea, floral leaf, supporting the peduncle of the flower.

3. Spina, thorn, a sharp excrescence of wood.
4. Aculeus, prickle, attached to the cuticle as in the rose.
5. Cirrhus, tendril, clasping other objects to support it, as peas, &c. vines.
6. Glandula, gland, excretory duct of vegetable, the same as the scale on the side of horses and swine, the disease of swine cured by opening this scale.
7. Pilus, hair, excretory duct on the surface of leaves. Count Rumford discovered that sharp points of any substance placed under water in the air of the room evolve bubbles of oxygenous gas.
8. Pubis, down, excretory ducts.

L. Macneil's Lecture. Carbon is insoluble in water, undergoes no change in the most intense heat is a good conductor of electricity and a bad conductor of caloric it destroys all colours and is therefore made use of to purify water and spirits, and to deprive them of their disagreeable flavours the reason why water becomes sour in casks is that it decomposes a portion of vegetable matter, charcoal has a strong affinity for moisture. Plumbago is a composition of carbon and iron of which lead pencils are made it is a good conductor of electricity. Diamond is very combustible but cannot be melted. Carbon unites with hydrogen forming carburetted hydrogen, this is generated in stagnant pools, which is deleterious, it burns in contact with common air, with oxygen it detonates, it exists in coal mines, and is used for lights in manufactories.

December 28. Dr. Michxli's Lecture. Sug. Rescence of Vegetables
or their mode of Flowering.

1. Verticillus, whorl, the manner in which flowers surround the stalk.
 2. Racemus, cluster. Flowers growing in clusters.
 3. Spina, spike supporting fructification on the end.
 4. Cymbus, cymbe, growing upon a number of stalks.
 5. Fasciculus, bundle. stalks in bundles.
 6. Capitulum, fructification in globular heads.
 7. Umbella, umbel, is called from a *Lanceolatus* flower to an umbella.
- Most of these are venomous but their poisonous qualities may be obtained
or domestication, as in the canot, parsnip &c.
8. Cyma, cyme, very nearly resembling the umbel.
 9. Pannicula, pannicle.
 10. Thyrsus, bundle, open & loose pannicles.

Leaves of Vegetables. Folia are considered according as they are

1. Simple, or a stalk with one leaf.
 2. Compound, a stalk with more leaves.
 3. Determinate, the relation which they have to the plants.
- The reason why leaves fall off in autumn is the subtraction
of Caloric at that season, if they do not lose their leaves they are
called Semihivernal, or evergreens. Flowers are the generative or-
gans, and leaves the respiratory organs of plants. Dr. Lavoisier sub-
stanced that leaves were furnished with arteries and veins, for passing

through the footstall, to carry them their nourishment. Dr. M.
thinks that Oxygen enters both by the stomach and lungs, and also
that Ozone enters the circulation, and is as much a pabulum vita
as oxygen itself. in respiration oxygen unites with the carbon which
is evolved from the lungs, forming Carb. ac. gas. Some contend that
Oxygen is taken in by the stomach alone. Many animals appear
luminous which is owing to their reacting with their redundant light.

Dr. Macneven's Lecture. Carb. Potash is composed of 31²⁷/₁₀₀ acid and
68³²/₁₀₀ base. this turns vegetable blue green and effervesces with acid.
Mercury absorbs many times its bulk of Carb. ac. gas before it be-
comes saturated to prove the purity of Alkali, just determine
how much acid a given quantity of acid will take up. this is a
standard. then afterwards by this test you can discover the purity
of any alkali. Sub. carb. potash deliquesces in the air, and retains its
Carb. ac. gas, at the highest temperature it has a strong alkaline
taste. more carb. ac. gas may be united by compression forming the
Bicarb. potash, which is the best antacid that can be used, also
for the effervescent draught, it does not deliquesce in the air but
requires four times its weight of water to deliquesce it. Carb. Soda
consists of 42 acid, and 58 base, with a double quantity of acid it
forms the Bicarbonate of Soda. Carb. ac. gas has a strong affinity
for Ammonia. they both exist in a gaseous state, yet their union

forms a solid the Carbon. Ammon. Sal. Ammoniac consists of
Ammonia and Muriatic acid. 2 vol of Alkaline gas and 1 Carb.
ac. gas forms the Sub. carb. Ammon. this loses some of its weight
by exposure to the air. Carb. ac. unites also with the earths as with
Barytes forming Carb. Barytes which is a poison it is considered
22. acid. 78. base. Chalk and marble are Carbonates of Lime.
Lime water attracts Carb. ac. gas from the atmosphere, which
forms a crust, and afterward precipitates. Liquid Magnesia
is made by forcing Carb. ac. gas into magnesia by compression.
it is an excellent medicine, as a laxative.

December 29. Dr. Mitchill's Lecture. Simple leaves differ from and
other and are divided into.

1. Circumscription, the outline of plants.
 2. Ungula, angle, the prominent parts of plants.
 3. Sinus, cuneate part, the indents of angles.
 4. Apex, the extremity, or point of a plant.
 5. Margo, margin, or lateral border.
 6. Superficies, surface, upper and lower.
 7. Substantia, the matter of the two sides of the leaf.
- Compound leaves are such as grow upon one stalk.
1. Structure, articulated, digitated, crenated, pinnated &c.
 2. Their degree relative to the composition or subdivision.

The Determinate leaves are divided thus.

1. Locus, the point of insertion.
 2. Situs, the disposition of leaves on the trunk, as thick, or sparse &c.
 3. Inaequalitas, the place where it is inserted.
 4. Directio, whether adverse or oblique to the sun, or horizontal.
- Fructification of plants, a complete plant flower consist, of 7 parts. 1. Calix, flower cup, 2. Corolla, wreath. 3. Stamen. stiver. 4. Pistil. 5. Pericarpium, inclosure. 6. Semen. seed. 7. Receptaculum. receptacle.

Dr Macneven's Lecture. Worms are of different kinds. the Ascaris is generally found in the rectum, the lumbricus in the smaller intestines, and the tenia which is sometimes ten feet long in the whole tract of the intestines. Hydatids are also animals, and are found in different parts of the body, the are transparent bodies, Dr. M. was once called to deliver a woman, but instead of a fetus, a bunch of hydatids were extracted, there are two opinions respecting worms some suppose them taken in to the body, and others that they are generated in the body Dr. M. is of the latter opinion, they are found in almost every part of the body, and often perforate the intestines. Every thing that weakens digestion favours their production, and children and females are the most subject to them. they produce local and sympathetic effects, and diseases caused by them often assume the form of nervous.

colic, vertigo, epilepsy, bilious vomiting, and fever, the symptoms of worms are swelling of the abdomen, alternation of looseness and constipation, inaction, irregular pulse, fetid breath, slimy stools, dry cough, tenesmus, itching of the nose and anus and many enormous symptoms. Anthelmintics act in different ways, some as poisons, some as evacuants, some mechanically, and some indirectly, that is by strengthening the alimentary canal.

December 30. Dr. Mitchell's Lecture. The Calyx or flower cup is of several forms, and is thus named.

- A. *Bractheum*, situated at the base of the flower embracing it.
 - B. *Involutum*, flower cup peculiar to umbelliferous plants.
 - C. *Umbonatum*, scaly flower cup, containing the fecundation.
 - D. *Spatha*, peculiar to palms, onions, &c.
 - E. *Gluma*, peculiar to grasses.
 - F. *Calyptra*, peculiar to mosses.
 - G. *Volva*, peculiar to fungi.
2. *Corolla*, wreath, the coloured part which consists of one or more petals, called *Monopetalous* and *Poly-petalous*.
1. *Monopetalous*, of one petal, which petal is divided into *Tubus*, tube, or its upper part, and into *Limb*, limb, or its lower part.
 2. *Poly-petalous*, of many petals, which petals are divided

into Unguis or claw, that part attached to the plant, and into
Lamina, or its expanded part. Monopetalous plants are di-
vided according to the form of their petals into 1. Campylota,
resembling a bell. 2. Infundibuliforme, resembling a funnel.
3. Ringens, resembling a laughing mouth. 4. Personata. 5. Hy-
pocratis formae, resembling a salver. 6. Rotata, like a wheel.
Polypetalous plants are called Papilionaceae, resembling a
butterfly. Flowers are called Liliaceae, resembling a lily and
Rosaceae from their resemblance to a rose.

I Macneven's Lecture. Put two vials into a scale one containing
a solution of alkali, one of acid, and compare them, then mix
the two together a brisk effervescence will take place, with an ex-
tinction of carb. ac. gas, then weigh them and you will find that
they have lost a great deal of weight.

Boron is a simple inflammable, with oxygen it forms Bor. ac. which
is a hard white substance, greasy. Boron is insoluble in water, of a
greenish brown colour, no taste, neither fusible nor volatile, is solu-
ble in ether and oil, Boracic ac. is the sedative salt of Homburg.
by fusion a transparent glass is formed. Bor. ac. with soluble bases
forms borates. Sub. bor. sod. or common borax has a styptic taste
and effloresces in the air, it is used as a gargle in the throat of children.
Potassa has a strong affinity for Oxygen.

January 3. 1820. Dr. Macneven's Lecture. Metals are very brilliant bodies in an aggregate state. They are simple bodies they are the best conductors of electricity, and good conductors of Caloric, they combine with oxygen forming oxides which are of a dull colour, and heavier than the metal from which they are formed. There are 39 metals, divided into 8 classes according to their affinity for Oxygen.

1. Those whose nature is dubious.
2. Those which absorb oxygen at the highest temperature.
3. Those which absorb oxygen at the highest temperature, but do not decompose water without a red heat.
4. Those which absorb oxygen at the highest temperature but do not absorb water at all.
5. Those which require a high temperature to unite with oxygen.
6. Those which do not decompose water nor absorb oxygen.

Physical properties. They are solid at the common temperature except mercury of different colour, of a peculiar lustre depending on their power of reflecting light, a lustrous, dense, and ductile and brittle the ductile have tenacity, and their strength depends on their tenacity, they differ in their hardness. Metals have elasticity and sonorosity in proportion to their hardness. Some are soluble by heat, those which have most oxide have most taste and smell, the structure of Metals is various.

Chemical properties. They are fusible in different degrees of heat, some are infusible, some are volatile at a high temperature. The most inflammable bodies will not burn in pure hydrogen or nitrogen, nor burn with various coloured flames. The atmosphere consists of 21 Oxygen and 79 nitrogen. Natural State. They are very seldom found pure, they are found in the four following states. 1. Pure metals. 2. Oxidated metals. 3. Combined with combustibles, as with arsenic and sulphur. 4. Metallic salts, generally the sulphuric, stannic, phosphoric and carbonic acids, with the metals, their uses are very extensive. No nation ever became civilized without the discovery of the metal, preceding it.

January 4. Dr. Macnevin's Lecture. On the galvanic battery Metals burn with different coloured flames. Silver burns with a green flame yet it is not oxidated by its combustion. Some combine with oxygen by mere exposure to the air they form oxides at different temperatures. Water is the great oxidizer of metals. All acids contain oxygen, hence they oxidate metals, the nitric and oxy-muriatic acids are the best oxidizers, as the affinity of their bases is not great. Equal weights of metals will decompose unequal parts of hydrogen. Iron has a very strong affinity for oxygen. Acids decompose with metals, but not with oxides, because oxides are already supplied with oxygen. Oxidation is a simple combi-

nation with oxygen. Some metals require more oxygen than others. Metals unite with oxygen in definite proportions, and different oxides of the same metal require different degrees of acid as Corros. Sub. and Calomel. The quantity of acid which metals require to oxydate them is in proportion to the oxygen which their oxides contain, as oxides contain different quantities of oxygen.

January 5. Dr. Macneven's Lecture. On the new ties. Saltpetre (Niter), male fern, has an astringent bitter taste, nauseous smell and is deemed a specific against tania the patient should be prepared by an emollient phlotha, then take two or three drachms of the powdered root of the fern to be given in the morning with some strong cathartic afterwards, the tania is generally expelled by the first dose, probably the cure depends on the strength of the cathartic the patient should eat freely, for the worm will attack the intestines if not. Those who live upon Indian grain are the most subject to lumbrici, these are ~~very~~ dangerous, as they sometimes perforate the intestines, they are frequently voided by the mouth and anus. The Cabbage bark is the most certain remedy in lumbrici; it is the bark of a tree in Jamaica, though seldom prescribed. it is given in different forms Decoction $\mathfrak{z}\text{ij}$ of the bark, a quart of water, sweetened with sugar it is to be given in proportion to the age of the patient, until nausea is produced. Lime juice is the best antidote when narcotic

poisons have been taken. *Dolichos purpureus*, cow itch, the hairy substance on the pod is serviceable in humors, a cathartic to be given afterwards. Colomel should always be an ingredient in purgatives for worms. Dr. Me. has used the *Dolichos* with great success, its action is mechanical. *Spigelia*, pink root, is a good vermifuge, a vomit should be given, and a *Cassia* given with it. *Chenopodium* has a bitter taste, and is active in a small dose, the whole plant may be used. Dr. Heberden relates a case of worms cured by enormous doses of salt, after other remedies had failed, he took two pounds of salt dissolved in a little water in less than an hour, which induced strangury and other complaints, the next day he took the same quantity which induced the same complaints, but his other complaints were gradually cured. Tin is a good vermifuge, its operation is partly mechanical, and its action is also owing to the hydrogen which is given out in the intestines, if sulphur is present sulphuretted hydrogen will be formed. Iron filings also give out hydrogen, and these are good vermifuges. Sulphuretted ether in conjunction with green coat is used with great success in France, afterwards a dose of Castor oil should be given.

January 6. Dr. Macneven's Lecture. Specific gravity of bodies is determined by a comparison of the weight of one body with another

both must be of the same bulk, as for example a cubic inch of water, and of iron, would be as 1 to 7. Distilled water is generally made use of to ascertain the specific gravity of bodies, any substance weighs less in water than in the air, because water is so pure. We obtain the specific gravity of bodies by first weighing them in the air, and afterwards in water, and then divide the weight of the body in air, by the quantity of water displaced, and the quotient will give the specific gravity. The following experiment was made in an hydraulic scale, a piece of metal was put in the scale and weighed in the air, its weight was 115, then it was weighed in water, and its weight found to be 100, now to find its specific gravity, divide its weight in air, by 15 its loss in water, and the quotient will be the specific gravity, hence when any difficulty occurs, in distinguishing metals, for some resemble each other in colour &c., you may determine them by referring to tables of specific gravities. To find the specific gravity of fluids, first fill a vessel with distilled water, and weigh it, then fill it with the liquid, whose weight you wish to ascertain, and weigh it, the difference of their weights will give its specific gravity, another mode is to immerse it in distilled water, its specific gravity will be determined by its relative weight to the water. The Hydrometer is a graduated glass tube to weigh liquids. The goodness of acids may be determined by their specific gravities. Temperature must be attended to in determining the specific gravity of Spirits, for they are rarified by heat, and condensed by cold.

hence experiments of this kind are generally made at a temperature of 60° Fahrenheit. The specific gravity of gases are found by weighing equal bottles of them, and ascertaining their relative weights. Atmospheric air is the standard. Light substances are weighed in water by attaching weights to them.

Lesson 7. L. Macneven's lecture. Those Metals that attract water from the air, and absorb heat at the ordinary temperature, of these there are manganese, zinc, iron, and tin. Manganese when united with iron is Manganese, it consists of 2/3 oxygen, it is of a greyish white colour, & no taste or smell, very brittle. Spec. grav. 8, it is more fusible than iron, a small addition of iron makes it magnetic, it changes colour in the air, it has three definite oxides, the protoxide, deutoxide and peroxide. Ammonia separates iron from manganese, the precipitate of protoxide is white, and of peroxide, brownish. To obtain oxygen from manganese strong sulphuric acid must be added and heat applied. The oxide of any metal to become soluble in acids must have 20 parts oxygen in the proportion of 100 parts, the per and protoxides unite with sulphuric acid forming sulphates. Manganese makes white precipitates with alkalis. Manganese is made use of to obtain oxygen and also chlorine, which last destroys all colours it is also used to clear glass, and to decolorize it contains iron as is shown by the

green precipitate which it forms with the sulphate of potash
Zinc is obtained in combination with sulphur and oxygen
its specific gravity varies, but the best is the lightest, it oxy-
dizes in water, but not in air, hence its use to cover houses, it
decomposes water, evolving hydrogen gas. Fire converts it into
the oxide, which is heavier than the metal by the absorption of
oxygen. Zinc unites with chlorine forming the chloride of zinc
Conos. Sublim. consists of chlorine and mercury.

January 8. Dr. Macneven's Lecture. Diseases increase the secretion
of the kidneys, there is a great affinity between certain materials and
our own organs, hence medicines produce catarrhs, diarrhoea, &c. Medicines
have peculiar powers on different parts of our bodies. We have a reflex
power over the bladder, owing to the connection with the sympathetic
the nerve. Some suppose that there is a more direct passage to the blad-
der than through the circulation, for the waters of dogs have been tried and
yet, when drinking a large quantity of water they pass it off rapidly, the
case of ascites, by catarrhs increases this supposition, for the fluid
must have been taken up by the lymphatics of the intestines, this
passage is supposed to be by the lymphatics. Cold air and cold imbu-
sion increase the discharge of urine, as does a beaker. The sensibility
of the bladder in old age is more obtuse than in youth. Rollo supposes
the primitive seat of diabetes to be in the stomach, it is owing

to the unstimulation of the food. Dropsical patients should
drink freely. There is a great sympathy between the skin and kidneys.
Neutral salts are generally laxative and diuretic, and are injurious
in all mucous discharges, as in catarrh and gonorrhoea. Diuretics act
in two ways either by promoting absorption, or increasing secretion;
whatever promotes perspiration diminishes the secretion of urine
to increase it then clothing and cold aspersion on the feet. The
activity of the absorption appears to be in an inverse proportion to
the debility of secretion. Diuretics excite the action of the lymphatic
system, hence their use in dropsies, in diseases of the chest. They
reduce the activity of the system. Particular diuretics. Potassa.
Sub. carb. potass has considerable power. Tart. Potass is much better,
and ^{dup.} Tart. Potass is much more active than either. Nit. Potass.
in the dose of $\mathfrak{z}\text{ss}$ in 24 hours is a powerful diuretic, with jalap it
forms an hydragogue much used in dropsy. Spirit. Rectif. Nitros. is
a very good diuretic in the dose of $\mathfrak{z}\text{ss}$. gr. an adult. A decoction
of marsh-mallows is a very good domestic diuretic.

January 11. L^r Macnevens Lecture. Iron is the most abundant
of all minerals and exists in almost all fluids, also in animal and
vegetable matter, it is of bluish white colour, its spec. grav. 7.8 per
100. Nitric acid is soluble and cellular, it combines with oxygen, in
heat and air having a great affinity for it. Oxygen combines with

in two proportions, the protoxide which is formed by burning iron wire
in oxygen gas forming a black powder, and the peroxide which is a brown
ish powder. Native oxides of iron are very numerous. Magnetic ore
of iron contain a small quantity of oxygen, they are chiefly met with
in primitive forms. Oxides are converted into metals by charcoal
it absorbing the oxygen of the oxide, and forming the carb. ac. gas.
Salts of iron become red by exposure to the air from the absorption
of more oxygen. salts formed with the peroxides do not crystal-
lize. Iron unites with chlorine forming chlorate of iron, iron wire
burnt in chlorine gas forms the perchlorate of iron. Iodine also
unites with it. Mur. ac. dissolves the per and protoxides.
Sulphur unites with iron in two proportions forming the black
and yellow sulphurets of iron. Iron fuses by exposure to heat
and moisture forms sulphate of iron. Sulphuric ac. unites with
the protoxide in the proportion of two acid and one iron and by heat
forms the Sulph. Fer. Ox sulphurets are obtained by the peroxides in
dilute muriatic acid. Phosph. Fer. obtained by Phosphoric acid and
iron. Iron unites with carbon forming carbonates of iron. When
Phosphic acid. is added to solution containing iron, which is possible
the precipitate is blue, if protoxide white, this acid is an excellent
test of mineral springs containing iron, forming a blue colour, Hydro-
sulphuret of Ammonia is another test forming a black colour. Cry-
stallized tin is made by washing it in dilute acids.

January 12. Dr. Mitchell's Lecture. Continuation of the parts of a flower.

3. Stamen or chive is divided into 3 parts, it is the male organ of the vegetable, the three parts are

A. Filamentum or filament conveys nourishment to the anther.

B. Anther a secreting organ of the pollen.

C. Pollen, or fecundating dust which colours the flower.

The Anther is the vegetable testis, it secretes the vegetable semen or pollen, the Pollen or fecundating farina varies in all flowers.

Moisture causes the anther to burst with an explosion and at the same time moisture on the female organ attracts the pollen this moisture is the medium of fecundation. The Pollen is generally yellow, and is falling in large quantities from trees in high winds has given rise to the stories of showers of birchstone falling.

4. Pistillum or pistil is the female organ of generation, it is divided into three parts.

A. Germen, the lower part or immature womb of the fetus contained in the vegetable uterus.

B. Style which is analogous to the Fallopian tube in women carrying the pollen to the vegetable uterus.

C. Stigma, the top of the style, receiving the pollen.

By castrating the male organs in vegetables, or taking away the female organs no impregnation takes place, this proves the separation of plants. Where both organs exist in the same

Utricle or testis. they are called bisexual or hermaphrodite
they are called male or female plants according to the situation
of the generative organs.

Dr Macneven's Lecture. Scilla marit. or squill is a stimulating
diuretic, it acts also on the lungs hence its use in hydrothorax it
is more efficacious when combined with Cal. it is applicable in
cases of dropsy arising from visceral obstructions, it is also given with
the neutral salts. the root is the medicinal part, it is nauseous
and intensely bitter to the taste, and very acrid, it should not
be given in large doses to those subject to hemorrhoids, it is applic-
able in all pulmonary affections unattended with inflammation. in
cases of dropsy attended with thirst it may be joined with
it, it is stronger in a dried state than when recent.

Colicium autumnale is very acrid in its recent state, an
oil and an elixir are prepared from its root, it is given in
gout and rheumatism, and is supposed to be the basis of Clean
medicinal, a quack remedy used with great success in the above
complaints in France, it is found to be an almost invincible re-
medy in gout, and by many eminent physicians in England
is considered a specific.

Lobelia syphilitica has cathartic and olivetic qualities, and
was supposed though without any foundation to be a remedy

for the influence its name.

Digitalis purpurea, foxglove, the leaves of which are generally made use of, they are bitter, nauseous, and acrid, and should be gathered when the flowers are just opening. *Digitalis* produces all the effects of the narcotic poisons, and its anticholeric are the same as a blister on the stomach, stimulant &c. when it once produces diarrhoea, it continues for several days as syphilis from mercury. It is a very singular fact that persons under the influence of this medicine while standing have their pulse at 140, while sitting at 90, and if they lie down their pulse falls to 40. *Digitalis* acts more particularly on the absorbent system, and is an excellent remedy in dropsy. Dr. Darwin found it most beneficial in dropsy attended with debility or brought on by intemperance. L. Boerhaave considered it an almost certain remedy in phthisis, it is given in substance and tincture. Turpentine, and Balsam. Copariva have also churctic qualities and are given in gleet.

Cantharides or Spanish flies are churctic, and are given either in substance or tincture in catarrhs, swellings of cold leucorrhoea habit. Women after parturition are often subject to an involuntary, chibbling of urine, and cantharides given internally, and applied externally in the form of a blister to the perineum effect a cure.

January 13. Dr. Mitchell's Lecture. Continuation of the organs of fructification in plants.

5. *Pericarpium* or seed vessel which is in different forms.

A. *Capsula* which bursts determinately to let out the seeds, that is into regular parts as the *Datura stramonium*.

The pericarp in the form of capsule consists of 4 parts.

1. *Calva*, that part between the divisions of the pericarp.

2. *Dissepimentum*, a part separating the chambers of the valves.

3. *Columella*, the central part where the valves unite.

4. *Loculamentum*, the chamber or place where the seeds reside.

B. *Silqua* a dry pericarp, consisting of two valves which have a partition between them, as the mus. and seed.

C. *Silicula*, has the same constitution as the *silqua* but differs in shape. None of the *silquose* or *siliculose* plants are poisonous, the antiscorbutic plants are of this kind.

D. *Legumen*, a dry pericarp, having no partition, the seeds attached to one side, when determinately as the bean, pea &c.

E. *Conceputicum*, pericarp splitting open one side, showing a part horizontally divided with the seeds attached, as the plum.

F. *Quina*, a pericarp without any valve inclosing the seeds as the stone fruit, the peach stone for example.

G. *Pomeum*, a valveless fleshy pericarp, inclosing a capsule with its seeds as the apple, quince &c.

- H. *Bacca* a watery succulent pericarp inclosing seeds, without capsules as the gooseberry, currant &c.
- I. *Strobilus* a woody pericarp holding the seeds, all the coniferæ or cone bearing trees are of this kind as the pine &c.
- J. *Pepo*, a pericarp having a pulpy substance containing the seeds as the water melon, squash &c.
- K. *Murantium* a pericarp with the seeds laying in the pulp as the lemon, orange and lime.
- L. *Folliculus*, a pericarp the seeds of which after its bursting are suspended by a thread for some time as the cucumber tree.
- M. *Syncaepus* the fig, the pericarp which becomes enlarged forming the fruit, the seeds are in the centre.
- N. *Carioparus* the pericarp which is where the husk adheres to the grain, as barley, rice &c.

January 14. Dr. Mitchell's Lecture. Continuation of the parts of fructification. *Receptaculum* is that part in which all the parts unite, or are joined it is divided into 3rd part.

A. *Receptaculum Proprium*, the receptacle peculiar to one flower as the apple and peach, under this head are the *Recept. fructificationis*, or hermaphrodite plants.

Recept. floris, the male plants, where the parts unite.

Recept. fructus, where the parts unite in the female plants.

Recept. Seminum, receptacle of the seeds as in the sunflower.

B. Receptaculum commune, common to all plants. divided into Umbella a umbell, a common receptacle.

Umbellula, or little umbell, which umbells are divided into Simplex where the umbell has only one centre of divergence. or Composita where there are two or more centres of divergence.

Cyma, an instance of compound receptacle.

Spadix another instance of compound receptacle.

Compound flowers have a calyx surrounding a common receptacle. *Actaea Lappa*, *Cundock* an instance of a common receptacle. A Corn cob an instance of elongated receptacle.

The Semen, seed the 7^{th} part of fructification has been already described.

The Gallic acid is a product of disease in trees, and is an excellent test of iron. This with sulphuric acid. makes ink and we should be very careful that the acid is not too strong lest it should destroy the paper.

Dr. Macneven's Lecture. Iron is of three kinds. Cast iron which is of two kinds light and dark coloured the light coloured is the most brittle. 2. Forged iron. 3. Steel which is a combination of iron and carbon. Iron is formed into steel by burning it with charcoal in a reverberating furnace, the charcoal being a bor-

bed by the iron. If iron is heated and then suddenly cooled it becomes very hard. the texture of iron is fibrous, steel is laminated, to distinguish iron from steel, drop any acid on the substance you wish to test, if it is steel the acid does not dissolve it owing to its hardness, if it is iron the acid dissolves the iron and does not leave a spot which is the case with steel.

Stannum, tin has been known from the remotest ages, it was mentioned by Moses, it is found in the state of an oxide, and is obtained from the oxide by charcoal, it absorbing the oxygen. The protoxide is obtained by ammonia. There are solid as well as fluid acids. The Spec. grav. of tin is 7.38 which is seven times the weight of oxygen. Chlorate of tin is made by burning tin in chlorine gas. Oxy. Muriate of tin is obtained by burning tin in Nitro. Muriatic acid. Peromuriate of tin dissolved in a solution of cochineal forms a light scarlet precipitate it is used in the dyeing of silk. Sulphur unites with tin in two proportions forming the protosulphuret, and bisulphuret, the latter has two proportions of sulphur to one proportion tin.

Cadmium is a metal which has been discovered very lately in 1817 in Zinc, its Spec. grav. 8. Air produces no change on it when heated when it forms an oxide which is soluble in acids the oxide of Cadmium.

January 15. D. Mitchell's Lecture. 8th part of Vegetable Fructification. Nectarium or nectary, even part not included in the foregoing description, it is an excrecence from the Corolla which is in different forms. This ends the consideration of vegetable gums.

2^d Gynous buds which have been already explained they are wanting in some even the Caspia and Mimosa.

Deciduous where they exist and fall off as the litch and sapifer.

Foliosae, non floriferae, but producing leaves but not flowers.

Foliosae et floriferae, bearing both flowers and leaves, as most trees do. This is common to the greater part of vegetables.

Foliosae et floriferae distinctae, have flowers on one bud and leaves on another, as the poplar and willow.

Foliosae et floriferae geminae, having leaves on one bud and female flowers on the other.

Foliosae et floriferae masculinae, having leaves on one bud, and male flowers on the other.

Buds are a succedaneum to keep up vegetable life in other means fail as if the pollen should be lost by wind &c.

If you insert the oculus of one tree into another it will become part of it which is called inoculation, they unite through the medium of mixed vegetable juices. Grafting is another mode of inoculation by inserting a twig into a

tree, this is the means of obtaining a variety of plants.

3.^d Bulbous bulbs, which have been already explained. All bulbous roots will grow in consequence of the nourishment they contain within their substance. Bulbs are divided into imbricated, tunicated, and solid. The Anstron heads of oats may be used as hygroscopy, water shortens their fibres and afterwards by drying them the fibres elongate by which they move in various directions. This finishes the consideration of Physiological or Philosophical Botany.

L. Meisner's lecture. Lithontriptics or solvents of Calculi. Calculus is seldom cured except at the commencement. It has been ascertained that in the Hospitals in Europe one in three die from the operation of stone, principally by men, stone are extracted from women by the dilatation of the urethra. The formation of calculi in the different organs containing urine is independent of any specific action. Instances are recorded of the organization of one kidney being destroyed and the other performing the office of both. Sometimes calculi are formed in the beginning of the urethra in the shape of a tunnel, any extraneous matter taken into the bladder will be a nucleus for a stone, they are often mistaken when in the urethra and prostate gland for strictures of the canal. They may be distinguished by the

second. The symptoms of stone in the kidneys are a long continued pain in their region, a frequent ~~and~~ discharge, and eventually a destruction of the organization of the kidney. The greatest pain is felt in the passage of the stone through the ureter, a brick coloured sediment in the urine, a retraction of the testicle with a numbness of the thigh. The symptoms of stone in the Bladder are, an itching and pain at the extremity of the penis, a sudden stoppage of the urine when it is flowing.

The tendency to form stone is generally preceded by an impaired state of digestion, as flatulence and acidity. All calculi are depositions from the urine, their colour and spec. grav. differ, they are of different kinds and are divided into-

1. Lithic or Uric acid which is of a brown colour and smooth it is dissolvable in the caustic alkalis, and in the Nit. ac. Gouty persons during their paroxysms generally void a large quantity of lithic acid in their urine, lithic ac. always exists more or less in the urine, and it is this substance which forms the sediment in some fevers, it has acid properties, and reddens litmus paper.

2. Earthy phosphates which are white and friable, and when pulverised are soluble in the Nit. and Mur. acids.

3. Ammoniac. Magnesic phosphates, a compound of Common. Magnes. and Phosph. ac. which is of a white colour.

4. Fusible calculi are a compound of Ammon. Magnes. phos. and phosph. calc. they are more easily pulverised than any other calculi, and it is this substance which is found in the fingers of gouty persons.

5. Mulberry calculi so called from their colour. they consist of the Coelate of lime, and are not soluble in acids.

6. Erythroid oxide which resembles the triple calculus or Ammon. Magnes. phos. and is more soluble than any other calculi. Carb. Ammon. enters into its composition of course it contains oxygen whence its name.

January 17. D. Mitchell's Lecture, 2^d part of the course.
Systematic Botany. Management of Vegetables in Clashes, Cider, Genera, Species and Varieties. The Linnæan or Sexual system adopted from which the Classification is made.

Examples to illustrate the Sexual system.
Planta Dichina or Dioecious having two beds, a the male and female flowers in different parts. the most common instance is the *Thymus*, *Lupulus*, hops the *Simage* is another instance where the male flower is on one part, and the female on another, also hemp and palm trees are examples.

Planta Monoclines or Monoicous, plants having one bed, or one on different parts of the same plant, instances, indian corn, cucum-
ber.

the melon family, squashes. The *Toxaria Aquatica* grows on the banks of the Michigan, it is an excellent bread corn, called wild rice by the Indians, many tribes live upon it, it produces spontaneous harvest, it grows on the banks of the river, and promises to be an excellent substitute for indian corn.

The Biennial plants have been already described.

02 Sexual Diminutions. Flowers having anthers are male.
the filament is sometimes wanting.

Flowers having stigmata are female, the style sometimes wanting.

9 Flowers having anthers and stigmata are bisexual.

Plants having male flowers are Male.

Plants having female flowers are Female.

Plant having both male and female flowers, are Bisexual.

Plants having male and female flowers distinct are called
Androgyneous. Willows of this country are all female.

Plants having Bisexual flowers on one plant, and male & female flowers on another part are called Polygamous plants.

Analogy between Animal and Vegetable organs of generation
in a bisexual plant.

Calyx Analagous to the *Pudenda externa*.

Corolla " " " " Nympha.

Filamenta " " " " Vasa spermatica.

Antenna Testes.

| | | |
|-------------|------------------|--------------------|
| Pollen | Analogous to the | Sperma. |
| Stigma | " " " | Os uteri. |
| Style | " " " | Tubus Fallopianus. |
| Germin | " " " | Ovarium. |
| Semen | " " " | Ovum. |
| Pericarpium | " " " | Uterus gravidus. |

Vegetables are disseminated over the globe by their seeds in various ways as.

1. Currents of air. Seeds have been carried from this country to Europe by their pappi and ala.
2. Rivers and streams, an instance in the great meadow grass of Connecticut, which first grew where the remains of a bird were found, and afterwards was distributed by the Connecticut river. Another instance, is a grass in Virginia which only grows on the margin of rivers as high as the tide rises.
3. Currents in the ocean. Seeds have been carried by the Gulf stream to the Western parts of Europe.
4. Migrations of men, instances of this are all the garden plants, coffee, indian corn and all the exotics.
5. Reclamation from a wild state.
6. Pappus by which they are often carried through the air.
7. Ala. by which also they fly.
8. Elasticity of the capsule.

January 18. L^d. Mitchell's Lecture. The Classification of Plants is founded on the parts of Fructification in 4 points.

1. Numerus, the number of the parts.
2. Figura, the figure of the different parts.
3. Situs the situation of the different parts.
4. Proportio, the relative proportion of the parts.

Other qualities of plants have been rejected and been considered uncertain, they are not therefore Botanical marks viz.

1. Colour. 2. Smell. 3. Taste. 4. Weight. 5. Magnitude.

The parts of Fructification are 7, they have the following forms or modifications viz.

Calyx has 7 modifications

Corolla " 2 " "

Stamen " 3 " "

Pistill " 3 " "

Pericarp " 8 " "

Seed " 4 " "

Receptacle " 4 " "

In the System of Linnaeus Plants are divided into 24 Classes not including the Palmae. They are called

1. Monandria, plants having one Stamen.

2. Dicandria " " two Stamens as the Sage

3. Triandria " " three " as bread corn.

4. Tetrandria having four Stamens, as the Dogwood tree.
5. Pentandria " five " as the Salix and Vinchona.
6. Hexandria " six equal Stamens, as the Liliaceous plants.
7. Heptandria " seven Stamens.
8. Octandria " eight "
9. Enniandria " nine " as the family of the Lauri.
10. Dicandria " ten " as the Eucagrees.

Plants never have eleven Stamens in a natural state as they are met with they are Lusi nature.

11. Dodecandria comprehend all plants between twelve and twenty, they are very irregular.
12. Icosandria having twenty Stamens always situated on the rim of the Calyx as the rose, apple, peach and other fruit, also those which have more than twenty Stamens situated on the rim of the Calyx.
13. Polyandria, having more than twenty Stamens but not on the Calyx, generally on the Receptacle as the tulip, poppy.
14. Didynamia, having four Stamens, two long, and two short.

D. Macneven's Lecture. Those Metals which do not absorb water at all, and attract Oxygen at a high temperature only, there are five of these, one is Manganese which is generally obtained from

a mine in Bohemia. The Chinese use it in syphilis. Arsenic is obtained from white arsenic or as is generally called white oxide of arsenic. When Carbon and an oxide are heated the charcoal burns the Oxygen leaving the metal. The Alkali or black flux is added to arsenic when we wish to sublime to obtain it as it is very volatile. The metal is of a bright steel colour, very brittle its spec. grav. 8 1/10, very volatile, when it emits a strong garlic smell, when melted in the air the flames are white oxide of arsenic owing to its attraction for oxygen. The metal and all its compounds are violent poisons. The metal has a foliated laminated texture, and has a strong affinity for Oxygen forming two compounds Arsenous and Arsenic acid, which have a sour taste are soluble in water and unite with other metals. Arsenous acid is of a white colour, and capable of being formed from combustion of the metal, its spec. grav. 3 1/10, acid taste and of a nauseous sweetness. Arsenic produces inflammation and gangrene in the stomach, and is fatal when applied to wounds hence it ought not to be used in cancerous affections. It also acts on the Nervous system for it sometimes causes death without inflammation. The remedies are emetics, copious dilution and every thing to obviate inflammation. Arsenic is distinguished from Corros. Sublimate by its almost insolubility in water. Salt obtained with the Arsenous acid are called Arsenites, and

from Arsenic acid Arseniates by boiling Alkali on the earths
with the acids. The following are some of the tests of arsenic. viz
1st solution of Arsenite of Potash and a solution of Sulphate of
copper together form an apple green precipitate the best way is
to add to the solution of arsenic some solution of potash and then
add some arsenous acid when the apple green precipitate is
formed the carb. potash forms a bright green precipitate and
the sub. carb. potash a pale green precipitate. On opening
the stomach examine the villous coat of the stomach, and
then examine the contents which should be slowly evaporated.
Nit. Potash. lina caustic when brought in contact with
Arsenite of potash is decomposed, that is, both, and an arse-
nite of silica is formed which is first a white and afterwards
a yellow precipitate. Sulf. Huretted hydrogen is another test
of arsenic, it forms a yellow precipitate. In controversies
however respecting poisons nothing should be relied on but
the reduction of the metal which is thus effected. Put the
suspected parts in a tube of glass and then close which is
easily done by heat, then sublime it by heat, the white pow-
der should then be thrown on a hot iron, and if a garlic smell
is emitted it is a sure test this must be the metal however
as for the white oxide does not emit a smell. Alcohol or char-
coal must be added to absorb the oxygen in it.

Chamic acid is obtained from 4 parts Muriatic. ac. 24 parts Nitric. ac. and Manganous. ac. the oxygen of Chamic acid and Manganous acid is as 3 to 2. with a little sulphur and carbon it forms Ch. -selenite. There are found several natural Manganates as the Manganate of iron and copper which are found in Cornwall also the Manganates of lead and cobalt.

January 29. L. Mitchell's Lecture. Continuation of the Classes.

15. Tetradynamia having six Stamens 4 long and 2 short.
 16. Monodelphia, all the stamens united in a cylinder.
 17. Diadelphica, ten stamens nine distinct, one by itself as the pea.
 18. Polydelphia, stamens arising in two or three clusters.
 19. Syngenesia, two distinct Stamens arising from the Corolla then united in a cylinder, common Calyx and Receptaculum.
 20. Gynandria, male and female flowers on the same receptacle.
 21. Monocaa, male and female flowers separated.
 22. Diacia, where the stamens and fructification are on distinct plants as in the hemp.
 23. Polygamia with flowers including male and also female, also bisexual as the ash and maple.
 24. Cryptogamia, inconspicuous parts as the great families of the Fungi, Lycopodi, Algae and Musci.
- The Palmæ are not included in these 24 Classes.

January 20. L^d Mitchell's Lecture. As the Classes are mostly taken from the male parts of Fructification, so the Orders are chiefly taken from the female parts. In examining a plant first look at the Stamens which will give the Class and then at the Pistils which will give the Order. these are the Orders viz.

1. Monogynia having one Pistil.
2. Digynia " two Pistils.
3. Trigynia " three "
4. Tetragynia " four "
5. Pentagynia " five "
6. Hexagynia " six "
7. Heptagynia " seven "
8. Octagynia " eight " and so on
- " Polygynia " many "

The number of Pistils is counted from the base of the style and when there is no style, from the base of the stigma.

In the Class Didynamia the 2 Orders are taken from the figure of the pistil as naked and covered seeds. Those having naked seeds are remarkable for their aromatic and medicinal qualities. Those of the Order Angiosperma or covered seeds as the Digitalis purpurea, fox glove.

In the Class Totodynamia the 2 Orders Siliquosa and Siliqua are taken from the condition of the seeds.

The Orders of the Class, Monadelphia, Diadelphia, Polyadelphia, Gamandria, Monocacia and Lixcia are taken from the male parts of Fructification.

The 5 Orders of the Class Syngenesia or Compound flowers are taken from the Polygamy which exists in them viz.

1. Polygamia Equalis, the florets all equal and fertile, the central part is called the Discus or disc, and the part surrounding it the Radius or ray as in the dandelion.

2. Polygamia Superflua, Hermaphrodite and fertile florets in the centre or disc and female florets in the radius which are also sterile and therefore superfluous as the tansy.

3. Polygamia Frustranea, Hermaphrodite florets in the disc and neuter ones in the radius as the sun flower.

4. Polygamia Receptanea, Hermaphrodite florets in the disc but barren as the maygold.

5. Polygamia Sepregata, the florets separated by partial calyxes or partial calyxes in one common calyx.

D^r Macneven's Lecture. Oxide of potash forms precipitates with almost all the salts, with the salt of Manganese a reddish brown precipitate, with ferrihydrate of iron a brownish precipitate, with the protoxide of iron no precipitate is formed at first. Sol. dissolved by hydrogen is a test of arsenic. Det 31 Sulph. Antimon.

and Zij sulphuric acid into a retort, the neck of which leads into
a solution of arsenous acid, then apply heat, and sulphuretted hy-
drogen passes over and mixing with the solution turns it of a lemon
yellow colour. Arsenic unites with Chlorine forming Chlorate of
arsenic which is a white deliquescent compound the chlorine
should be passed through warm water of about 90 or 100. For
cold water absorbs it. The Chlorate of arsenic is also formed by uni-
ting 8 parts Muriatic Hydrogen with one Arsenic. Chlorate of arse-
nic is of a butyraceous consistence, hence it is sometimes called
butter of arsenic as antimony is for the same reason. Chlorate
of arsenic is decomposed by water forming Muriatic acid from
the liberation of hydrogen in the water which unites with the
chlorine. Hydrogen is the lightest of all bodies, and decomposes arse-
nic though it is a very heavy metal. If a bubble of oxygen gas
is passed into sulphuretted hydrogen gas combustion is produced
with the evolution of heat and light. Arsenic unites with Iodine
forming the Iodate of arsenic. Arsenic and sulphur unite form-
ing Sulphurates of Arsenic. Experiment on the yellow sulphu-
ret of arsenic is as poisonous as the metal itself. There is also a
Sulphinate of Arsenic and iron. There is no Carbonate of arsenic.
Sulphur has been used as an antidote to Arsenic, supposing
that it would neutralise it, but it is found that the Sulphu-
rates of arsenic are equally poisonous as the metal itself.

arsenic forms alloys with other metals. The white oxide of arsenic is generally made use of as a poison, and it is a common test to burn it between copper, if it is the white oxide no white stain will be made but first the white oxide should be reduced to the pure metal by burning it in charcoal, and then by burning it between copper a white stain is left by the union of the two metals forming an alloy.

Chromic unites with oxygen forming Chromic acid. Chromic acid unites bases forming Chromates. The Chromate of potash is of a yellow colour. The Chromate of silver is of brown colour. The Chromate of lead makes a beautiful yellow pigment which has superseded other paints of that colour. the chromate of lead may be mixed with the carbonate of lead without having its colour impaired it will however dilute it. The pure oxide of Chrome is red.

January 22. Dr. Post in his lecture of today acknowledged that he was unacquainted with the manner in which impregnation takes place it is supposed by some that the uterus receives the seed and that it is taken up by the Fallopian tubes and from them received by the Ovaria, now in the first place the sides of the womb adhere, or are in contact, if the semen should be received into the uterus how is it to get into the Ovaria? the natural action of the Fallopian tubes is to convey the egg when impregnated into the uterus, then it carries the

union to the uterus, it must be by a retrograde action, again the Ovaria are attached to the broad ligaments which are double layered, of peritoneum and the fimbriae are considerably below the ovaria, suppose however the tubes should be retracted and the fimbriae embrace the Ovaria there is a covering of the Ovaria which would prevent it, in several different parts of animals as teeth and bones have been found in the Ovaria without cohabitation having taken place the egg also is a strong instance to prove that the fetus may be formed without cohabitation. Menstruation prepares the blood and womb for impregnation Dr Port supposes that blood has a vital principle, in this he agrees with Hunter who says that new vessels will be formed in the blood to carry on the circulation this is his principal argument. Bell contends that these new vessels are merely elongations of the other vessels, and that in wounds new vessels are never formed. Dr Port says that there is no communication between the maternal and fetal parts of the Placenta for the Decidua divides the two portions, he showed preparations where the injections had not passed between the two portions if they ever pass it must be by extravasation or rupture of the decidua. Dr Hirsch maintains that there is a direct communication that is, that the arteries of the mother send their blood to the Placenta and is taken up by the veins, and that injections have passed between the maternal and fetal portions, it is a fact that there will be little hemorrhage

shape from the mother if the cord is divided, the cord arises from the fetal portion. Dr. Post also supposes that the Placenta performs the office of the lungs, in decarbonizing the blood. It should be mentioned that one opinion is that in impregnation the semen is taken up by the absorbents of the vagina, mixes with the blood and as some must pass through the ovaria it might act on them and make them evolve their ova, this is somewhat plausible.

Dr. Mitchell's Lecture. The Two Classes *Hydethnia* and *Phygama* are somewhat uncertain in their characters and have been rejected by some modern Botanists. To find out what a plant is, first examine its character to find its Class and then its Order. You may also determine its Genus and Species in this manner. A magnifying glass is necessary to examine the minute parts of a plant. The character of a plant must be determined by its flower. When you cannot draw, you may delineate plants in this manner. Take some good paper and oil it until it is penetrated with it by which it becomes transparent, then hold the paper over a lamp until it is smelted with charcoal, then place a leaf or any other part on it, and it will attract the greasy root, and leave the impression. Insects have particular plants on which they feed and leave their eggs, thus the butterfly is almost universally found on the fennel hence you often know that you are in the

neighbourhood of horticul. plant. by the insect you see.

D. M. recommended the following books on Botany.
System of Vegetable by the Litchfield Society one of whom
was J. Darwin. Genera Plantarum of Linnaeus in Latin.
Rich's Synopsis of American plants a very useful manual.
Muhlberg's Catalogue. Nuttall's System of the Genera of
North American plants up to the year 1817.

D. Post when speaking of the Brain took occasion to men-
tion the theory and supposed discovery of Gall and Shumser.
They suppose that the Medulla Oblongata is the seat of the
senses and attempt to prove that the Medulla and Cortical
part of the brain including the Cerebrum and Cerebellum
is an appendage to the Medulla Oblongata and that certain
moulds or configurations of the external skull indicate certain
propensities or show disposition and mental capacity.
Dr. P. does not consider that this deserves any consideration.

The brain is made up of Cortical or Cerebrum matter and of
Medulla or white matter. Where the brain is Cortical exter-
nally it is medullary within and vice versa. There are ten
pairs of nerves arising from the brain and thirty from the
Medulla Spinalis. The Medulla Spinalis terminates in a
bundle of nerves called Cauda Equina.

Dr Macneven's Lecture. All the apparatus that is necessary to determine the different kinds of Salts is a Blow pipe which may be a glass or brass, a candle, and a small pair of tongs, the best are made of platinum because it resists fire. All coloured Salts will display more or less and if you can obtain a particle of the size of a pin's head it is sufficient. You distinguish them in the following manner.

1. Lithic or Silic acid which is of a brownish colour, very hard generally of an oval figure. Just before the Blow pipe it first becomes flat, then blackens, emits a peculiar odour, and burns leaving an Alkaline ash. It may also be distinguished by its solubility in caustic Alkali which is effected by applying gentle heat which dissolves it, the residuum may be precipitated by every acid into a white powder a drop or two of Nitric acid on it will dissolve it, turning it of a pink colour by mixing it with water it will give it the same colour. By then adding an alkali the colour may be taken away.

2. Phosphate of lime does not fuse before the Blow pipe, but it first blackens owing to the combustion of the animal matter then it whitens, it is soluble in dilute Muristic acid. Oxalate of Ammonia will decompose and form a precipitate.

3. Union. Magnes. Phosphate, or triple calculus which has two bases united to one acid the Phosph. it has a shagreened crystalline appearance a few particles of it burnt in a gentle heat

emit a pungent smell of Ammonia. by adding caustic potash the same smell is given out, by the heat of the blow pipe the Ammonia is volatilized, leaving the Phosphate of magnesia which is soluble in dilute acids, it may be recomposed by adding Ammonia.

4. Fusible Calculus so called because it fuses before the blow pipe at a moderate heat, it is a compound of lime and magnesia both of which are infusible separately. You may separate the lime and magnesia by the oxalate of Ammonia. This Calculus is soluble in all the acids, especially the Muriatic.

5. Mulberry Calculus which is of a brown tubercular appearance, it consists of the oxalate of lime, it softens and efflucesces in heat, turning into a white substance. this is proved to be an alkali by the usual tests.

6. Crystalline oxide. This is distinguished from other calculi by being unstratified, and soluble both in acids and alkalis.

Compound Calculi may be distinguished by the confusion of their results when analyzed.

Calculi are unorganized substances having no life and are therefore subject to the laws of affinity. The disease of Stone may be mitigated and the further progress prevented though it cannot be cured when very far advanced by medicine. The Calculi most commonly met with are the Phosphate of lime, the Phosphate of Magnesia, and the Lithic acid. The earthy

salts are soluble in Phosphoric acid, hence the reason why it is always found in urine. If urine be kept two or three days the Ammonia neutralises the Phosphoric acid, and the earthy salts are not kept in solution, but Ammonio Magnesia Phosphate is formed. If you add an alkali to urine already abundant with it a precipitate is formed, this may also be a test of the preponderance of an acid, as in that case a quantity of alkali might be added and the superabundant acid would neutralise it, and when precipitated it would be an evidence of its saturation. The two great chemical principles to be attended to are when Lactic acid is present Alkalis should be given, when the Earthy phosphates are present Acids should be administered. Some deny the conveyance of either acids or alkalis to the bladder, but any one may prove it on himself by taking alkalis for two or three days, the urine will be alkaline as may be proved by the usual tests. Dr. W. thinks it is conveyed to the urinary passages in a more direct way, than through the circulation. It is more difficult to detect acids when administered as the urine is always acid but Mr. Brand has discovered the Muratic and Sulphuric acids in the urine. Alkalis independent of their solvent quality when combined with Opium soothe irritation. A difficulty occurs in treating compound colic, but you may often by examining the sediment in urine determine what predominates and act accordingly. In Gravel especially during its

prophage active cathartics are proper also for gouty persons, and often pass gravel during their paroxysms. The administration of opium and turpentine is often followed by the discharge of lactic acid. Calculous affections are said to be more frequent in cold countries than in warm ones, perspiration also retards the formation of calculi, hence the state of the skin should be attended to.

January 24. Dr. Post says that sometimes when pregnant have child of hemorrhage without the child's suffering. Suppose the arteries and the maternal part of the placenta will be injected but not the fetal portion also injected by the umbilical vein and the fetal portion will be injected but not the maternal part.

Dr. Prentiss related the following case. A woman whom he attended had the usual symptoms of pregnancy until 5 months then in consequence of great fatigue the symptoms of pregnancy ceased and she was no longer sensible of the stirring of the child and her abdomen which was considerably enlarged began to diminish in size, she thought she must have been mistaken. 5 months afterwards, making 10 months from conception she was taken with labor pains and was delivered of a child exhibiting the usual appearance of a five months' abortion, there were no symptoms of decapitation, the membranes were natural, and upon detached from the placenta the usual hemorrhage occurred. Showing that

the circulation had been carried on during the last five months.
Dr. W. exhibited the uterus and membranes to the Class.
He also mentioned the following case which was communica-
ted to him from the Southward. A child, a girl, of twelve years
old was taken with pain in the bowels, and after some time she
passed some flattened hair from the rectum, at length a tumor
presented at the rectum and was taken out, examined, and found
to contain a part of a child at the head, cervical vertebra, and four
canine teeth which were of the usual size in the uterus, at the
delivery of this she regained her health which during her whole
life had been very infirm. Dr. W. showed the uterus and teeth.
He supposes this was a case where one ovum was enclosed with-
in the other in which there have been several instances, and that
one grew to the ordinary size while the other, owing to deficient
nourishment soon withered and became attached to the other
and in process of time was discharged. Dr. W. showed two prepa-
rations where the umbilical cord had three births in it.

Dr. Mitchell, Lecture. Exercise on the Hand flower tree
Mexico which is a very rare tree. Class Monadelphium
Order Pentandria. Genus Chionodoxa or Manata
Species Pentadactylon, it has the following parts.
1. a large none unless the Bractea is so called.

2. Corolla monopetalous, campanulate, persistent, green-
gaped, the division oblong and fleshy.

3. Stamens, five, smooth and hooked, somewhat unequal in
length, united below in a corolla. Anthers oblong, wavy, situa-
ted on the back of the filaments, and shorter than the Pistil.
Germ elevated, oval, green, ridged. Style angular, rather enlarged
curved at the top, and shorter than the filament. 4. Stigma sin-
gle and pointed.

5. Pericarp, woody, capsule, oblong, 5-lobed, having five ribs,
five lobes, five cells, and five excavations around the germ.

6. Receptacle, figured like the Capsule, to which it adheres.

7. Seed, ten or twelve on each loculement, oval, smooth,
shining, black, with a small spherical gland near the base
enveloped in a sort of Lin.

Observation. It has considerable resemblance to the Bombyx Lin.
Especially of green Tea which comes from China.

Class Polygamia. Order Monogamia. Genus Thea. Species
Virens.

Calyx - Perianthium virgine, haeritum, minimum, fla-
num, segmentis rationibus, obtusis, et persistentibus.

Corolla - petala sex, substantia immixta, duo externa
minora inaequalia, quatuor interna magna, equalia, ante-
quam decidunt recurvata.

Stamina Filamenta numerosa (circa 200) filis brevibus
filis brevioribus. Anthera cadata bilocularis. Germen globosa-
trilocum.

Stylus simplex apice trifidus, petalis stamini-
bus cohaerens recedentes. Stigmata unguicula.

Pericarpium Scabula tribus globis trilobularis, apice tri-
locum delinens.

Semina solitaria, globosa, introrsum angulata.

Receptaculum non est descriptum id est indistinctum.

Observation, on the leaf plant. The leaves have an unagi-
nated apex, a winged base, smooth, glaucous, bullate in-
petiolated, foot stalks very short.

January 25. Dr. Post recommended, in opening the temporal
artery to make a longitudinal incision instead of a trans-
verse one as is usually done. Wounds of the veins are seldom
dangerous you can distinguish them by the color of the blood
which will be very dark coloured heppare generally com-
mends them. Dr. P. has taken up the external iliac artery
for aneurism successfully, also the carotid, in wounds of the
hand, when difficulty occurs in stopping the hemorrhage
with the radial end when arteries should be tied, the hand
will not suffer for it will be supplied by the interosseous

artery, the same applies to the foot, the interior of the hand
is also of the foot anastomose very freely. In dissection
the median vein is preferable, for the artery runs under the
bicipiti, and the cephalic is invested in so much loose
cellular substance that it might elude the lance.

The Superior and Inferior Mesenteric and Splenic veins,
unite in the abdomen to form the Vena Portarum yet
M^r Williams relates a case where the above veins formed
a common trunk which entered the inferior Cava. The liver
was supplied by the hepatic artery only. One theory respecting
the peculiar circulation is that in the fetus the liver which
receives the blood by the ductus venosus, weakens the impetus
and prevents its lacerating other parts, it is however untena-
ble for the liver is a very friable organ. The ductus venosus
becomes obliterated in delivery, the other branches of the
fetal circulation are the ductus arteriosus, a duct between the
pulmonary artery and the aorta, and the foramen ovale or
communication between the two ventricles of the heart, these
also become obliterated, but the remains of the foramen
ovale are apparent always in the heart of the adult. The
use of the foramen ovale is for the circulation between the
ventricles, that of the ductus arteriosus, that the blood might en-
vent through the lungs and body at the same time.

D. Mitchell's Lecture, Exercise on Saccharum or Sugar cane.
one of the Graminae. Class Triandria. Order Digynia. Genus
Saccharum.

Calyx - none there being merely a downy tube within the bract
including but a single flower.

Corolla bicolor, the valves oblong.

Stamens. three capillary filaments, rather somewhat oblong.

Pistil. Germ. ob. shaped. Stigma simple.

Endosperm none at all.

Seed. oblong and single.

Exercise on the Myristica officinalis or Nutmeg tree.

The nutmeg prepared and preserved in spirit with the mace.

Class Polyandria. Order Monogynia. Genus Myristica.

Essential Character. The berry fleshy, one seeded with a
mottly membrane, dry, and situated between the bract and seed.

Observation. The seed is the nutmeg, and the membrane the
mace of commerce and the shape.

Expt. a Spurious Rye. Class Triandria. Order Digynia.
Genus Secale. Species Cerealia.

Ergotism is a disease not peculiar to rye. it sometimes exists
in barley and other grains, the grain when diseased is elongated,
curved, and blackish, it is considered as a fungus substituted
for the grain or is sometimes the case in Indian corn the

egg contains insect. It exists in three states. 1. per se. 2. containing insects which make their nidus in it. 3. as it is left by the insects full of holes and full of peculiar matter. Rye is much cultivated in the district of Salagne in France and when diseased and eaten by the people has produced various lesions with a venenous gangrene of the extremities, the hands and feet falling off. In this country other effects have been ascribed to it. It has been said that it is the cause of some Epidemics as Spotted fever &c when eaten, these however have prevailed when the crop of rye had failed. The Army Surgeons during the last war on the lakes ascribed the great mortality to the rations which it is said were made of bad grain. Egg is remarkable for its specific action on the uterus. Dr. W. thinks it one of the locus foetus trisectus Midwifery and that it should never be used as we are as yet unacquainted with the insects with which it abounds, they may be poisonous. It is never recommended in puerperal labour, and in natural ones it is not needed.

Dr. Macnevin's Lecture. Plumbum or Lead. Acetate of Lead is antispasmodic. The Dutch acetate of Lead or Fowler's extract used externally applied to chlostrous has from nuxius. Lead was a silver use anciently. The Indians reduce the metal to powder.

By fusion. Lead is of a bluish white color nearly tasteless, very soft. Spec. grav. $11\frac{55}{100}$. Its tenacity is increased by drawing it into wire, very malleable, it can be rolled into very thin sheets, melts at 542° Fahr. when fused it crystallizes, it is frequently mixed with copper. To obtain pure lead dissolve it in Nit. acid, and then crystallize it, this to be done repeatedly. Lead is converted into an oxide by exposure to air, that is the surface is which prevents the other from being oxidized. Lead pipes are dangerous, for an oxide is formed. The Peroxide of lead is brown. The Protioxide is yellow the peroxide contains two atoms of oxygen the protioxide one atom, thus the latter contains half the quantity of the former. The composition of the peroxide is 100 lead. 13 oxygen. The composition of the protioxide 100 lead. 7 oxygen. When lead is exposed in a vessel a grey pellicle is formed on the top which if taken off forms again with an increase of weight, owing to the absorption of oxygen. The process by which white lead is formed is by exposing lead to the fumes of vinegar. The peroxide deposited in Nitric acid forms the protioxide. Red lead is made with chlorine gas passed through it forms the peroxide which is tasteless. The Spec. grav. of red lead $8\frac{3}{4}$. All the oxides run easily into glasses. If gold is mixed with copper or any other metal forming an alloy, you can purify it by lead, take the

alloy and four times its weight of lead, put them into a crucible and apply heat, the lead will unite with the base metal and the gold will be left. Lead generally contains a small quantity of silver and the mines in Newmont contain it in considerable quantity its separation is called refining. Good lead ore generally gives 80 or 70 per cent pure metal the silver is separated from lead by heat, the silver remaining after the lead is volatilized. All the oxides of lead give out their oxygen readily by heat, red lead put into sulphuric acid with heat gives out pure oxygen gas, oxides give out their oxygen to any thing that has a greater affinity for oxygen. To reduce the oxides of charcoal is necessary. Lead unites with Carbon Dioxide forming carbonate of lead. Muriate of lead is very fusible and easily volatilized. It is very dangerous to put acids in glass vessels as they contain lead. Submuriate of lead is obtained by heating muriate of lead with an Ubbelohde. Carb. ac. gas unites with lead forming carbonate of lead or the common white lead, by exposing sheets of lead to the fumes of vinegar. In New York the carbonate of lead is first formed then the carb. ac. gas is passed into it, making a beautiful white. You can test lead by passing through it sulphuretted hydrogen gas, which makes it of a dark colour.

January 20. L. Post's Lecture. Nerves are so modified, that
they receive peculiar sensations. Some have supposed that the
spinal marrow controls voluntary motion. You can destroy the
life of different parts by destroying particular parts of the spinal
marrow. The great solar plexus is in the abdomen and all the
nerves of the abdominal viscera derive some of their branches from
it, becoming little plexuses before they enter the viscera. Nerves
have medullary matter in them as may be shown by passing
the optic nerve. Dr. Post supposes that the ganglia of nerves
exercise a certain influence which acts on the involuntary
muscles as nerves going to them have always ganglia while
those going to the voluntary muscles have seldom any.
Ganglia appear to be much an enlargement of the nerves.
Dr. Monro supposed them to receive the influence of the
brain. Nerves acquire a preternatural irritability, and
also become paralyzed yet their structure does not appear to
undergo any change. Nerves also influence the involuntary
muscles as appears by the effects which certain passions of
the mind have on the heart. Some suppose as does Dr. W.
that many medicines act not by direct application, but
on the stomach, and that by sympathetic action through the
medium of the nerves their effects are extended to different
parts of the system. Some Physiologists suppose that

Electricity is the cause of Nervous action which, pervades the body and under certain circumstances is transmitted through different parts of the body as in *Gammotus Electricus* a fish which has very large nerves, a small brain and which can at pleasure give out its electricity.

D^r Mitchill's Lecture. *Class Cryptogamia. O. Fungi. J. Ugan-*
-icus. fungus horizontal, lamellated beneath including the
family of *Agarici* which are used as styptics.

J. Boletus fungus horizontal, porous beneath.

J. Lycoperdon, puff ball, fungus roundish, filled with im-
palpable mealy seeds, like flowers escaping from the top.

J. Tubus a subterranean fungus roundish with a solid puff
as the *Tuechus* which is also called *Sclerotinia* because a
new vegetable principle has been found in it called *Sclero-*
-tine which is insoluble resisting all chemical agency, it
has been supposed by some to be a parasitical plant, that
is growing on other plants. Books recommended by D^r M.
Michaux's *Flora Borcali Americana* 2 Vol. in Latin.
Michaux's *Histoire des Chenes* of oaks, 1 Vol. in French
Michaux the son on Forest trees 1 Vol. in French.
Persis *Flora Americae Septentrionalis* 2 Vol in English.
This ends Physiological Botany.

3^d Part of Medical Botany: Examples.

10. *Diandria*. *C. Monogynia*. *G. Canilla*. *S. Mariana*, called
Dittany, an agreeable aromatic given either in infusion or
decoction as a remedy in anorexia and dyspepsia.

S. Pulgarden, Pennsylv. the same virtues as the former.

G. Verbena. *S. Carolina*. Lime scented vervain, aromatic

" *S. Officinalis* one of the same family

G. Gratiola. *S. Virginia*. hedge hyssop a febrifuge.

G. Lycopus. *S. Americanus*. water horehound febrifuge.

C. Tetrandria. *C. Trigynia*. *G. Lechea*. *S. Major* of Willd.
now and *Cistus Canadensis* of Linneus. the fleaweed. It
has been used with great success in New York by Physicians
and Quacks in tumors swelling and ulcers, particularly
those about the neck, it is to be given freely according to its
effect, in infusion or decoction. the root, stem, leaves and
flowers are used, a cataplasm should also be applied to
the tumor and sore, made of the plant.

C. Tetrandria. *C. Monogynia*. *G. Tricolor*. *S. Waltheri*. the Am-
erican Columbo, or pyramid flower, and equals the Asiatic Colum-
bo in appearance and quality, and can be used with equal success.

G. Cornus. *S. Florida* common dogwood the bark tonic, astringent
and bitter, used instead of *Cinchona Officinalis*. *S. Sericea* swamp
dogwood is an antidote to poisonous plants.

Dr Macneven's Lecture. Remedies of the Cutaneous system. They are considered under three heads. 1. As an absorbing system. 2. As an exhaling system. 3. As a sentient system. The skin is ~~an~~ an exhaling, absorbing, sentient system under the immediate agency of air, heat, light &c.

1. As an absorbing system. The lymphatics open through the epidermis as is proved by mercurial frictions, rubbing the body with turpentine &c. both increase the weight of the body. The activity of the absorbents removes bruises, purulent matter and accounts for the metastasis of diseases. If the bladder loses its action, or the gall bladder becomes obstructed, the urine and bile ^{are} carried into the circulation. The history of contagious diseases proves the activity of the absorbents. The skin according to its state must be stimulated or its irritability lessened. Absorption is stopped by Elephantiasis and Leucæmy. Mr Cruikshank relates a case wherein a person having a knee swelled with synovia took a dose of tart. emet. by mistake instead of acmortonian which completely dissipated the swelling. John Hunter also relates a case where there was a bubo almost fit to be opened which was cured by vomiting. An emetic of aloes rubbed into the abdomen will cure obstinate constipation after other remedies have failed, Cinchona, opium and

camphor by friction produce their usual effects. Digitalis has cured ascites in this manner rhubarb and scammony also produce their usual effects by friction. Rhus Toxicaria is a certain remedy for prura, it was first discovered in France. Olive oil neutralises the poison of serpents, a man before the Royal Society of France allowed himself to be bitten by a poisonous serpent, the usual symptoms supervened when by applying warm oil to the wound, he was cured. Acetic ether allays the pain of rheumatic limbs.

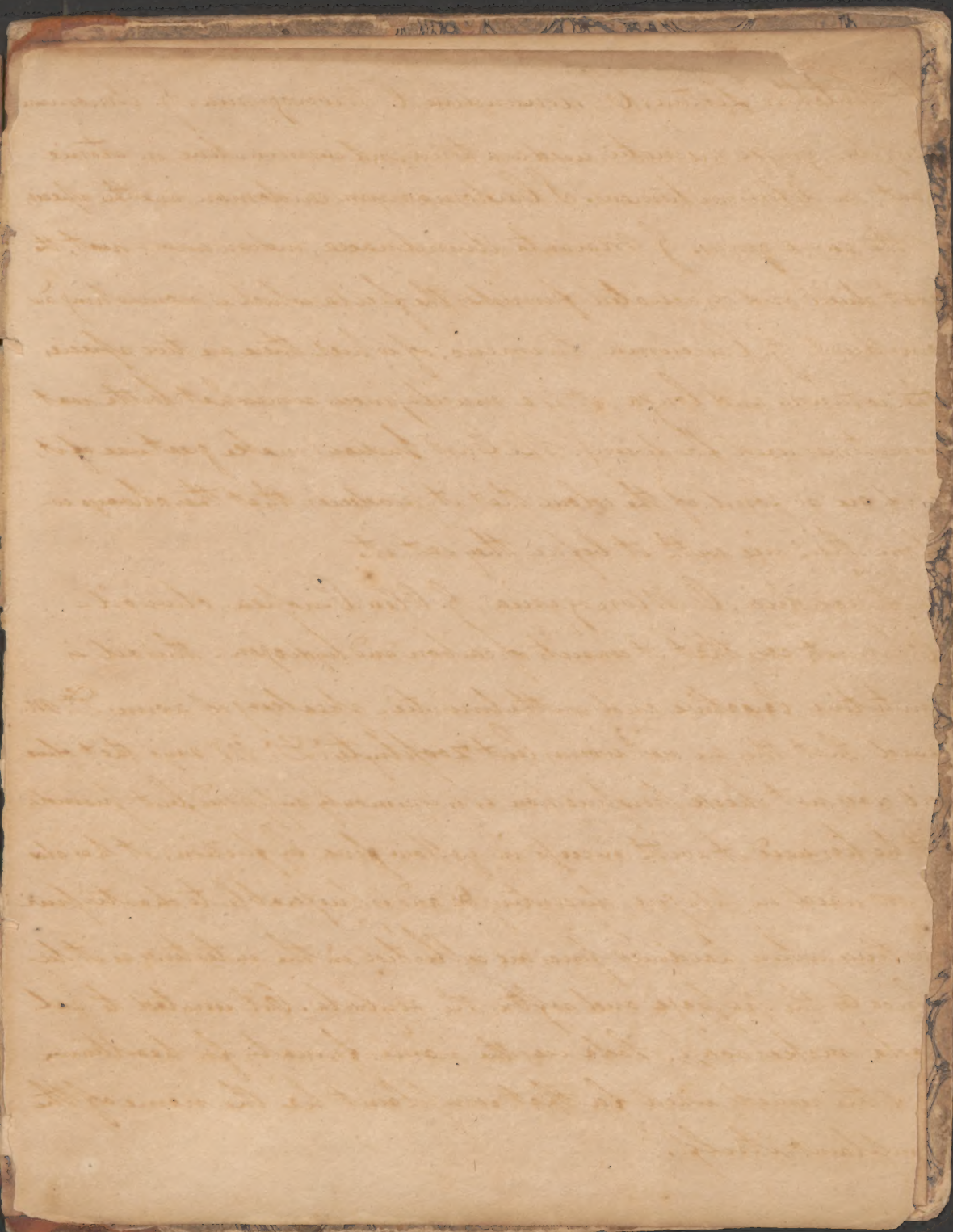
2. It is an exhalant system - The remedies are Diaphoretics. The stoppage of the perspiration causes many complaints. The anatomy of the exhalents is as yet imperfect. perspiration is affected by temperature air &c. it is a secretion from the minute arteries, and it is the perspiration which probably changes the colour of the blood. Heat acts immediately on the exhalents causing perspiration. When the heat of the body is above 108 Fahrenheit cold water and cold affusion will cause immediate perspiration, for the body will give out its superabundant caloric to the water, but when the body is of its natural temperature or below it the tepid affusion is applicable, for the cold affusion will reduce the temperature below its ordinary state, when the body is very hot, cold water will cause the heat to condense

on the surface of the body forming sweat. Diaphoretics act best in the morning, for during sleep the irritability of the absorbents increases, hence the reason why consumptive persons always morning sweat.

January 27th Dr. Post took up the per vagum of a dog when vomiting and shortly after death came on. This is the principal nerve of the stomach and duodenum, if you take up one per vagum the voice is much weakened owing to the recurrent nerve which arises from the per vagum and which is reflected up behind the aorta, there are no very serious symptoms however, after a few months you may take up the other and yet no serious symptoms intervene, even a piece of the nerve has been taken out, which shows that nerves like other parts have the power of regeneration. The 8th pair of cranial nerves when it leaves the brain, passing down in the sheath enclosing the carotid artery and jugular vein gives off branches to the larynx, and has been called the pneumogastric nerve by the French, in taking up the carotid we must avoid this nerve which lies under the artery. This nerve afterwards divides into two branches which supply the stomach and the nerves which go to the tongue are distinct, a branch of the 5th pair are for taste called the gustatory nerve, the 9th pair or lingual nerve to supply the muscles moving the tongue.

Dr. Mitchell Lecture, C. Monandria. C. Monogynia. *Z. Zingiber*. ginger aromatic, used as a tonic and carminative in atonic
gastritis, in *Schizium tuncens*. *S. Cardamomum*, cardamom, another species,
of the same genus. *Z. Maranta chinensis*, indian arrow root, the
root dried and macerated furnishes the fecula which is nourishing and
emollient. *Z. Cucuma*, turmeric, of which there are two species,
the *coccinea* and *longa*, it is a mucilaginous, somewhat bitter root
sometimes used for dyeing. The East Indians make great use of it,
and are so fond of the colour that it produces, that they always co-
lour their rice with it before they eat it.

C. Diandria. C. Monogynia. *Z. Olea*. *Eucalypta*, olive oil -
Chemists say that it consists of carbon and hydrogen. This oil is
nutritive, laxative and anthelmintic. Shearson, of worms Dr. M.
said that they are not worms but Zoophytes. Dr. M. says that olive
oil does not check perspiration as is commonly supposed, but promotes
it, he has used it with success in yellow fever by friction, it has also
been used in dysentery, &c and is preferable to castor pur-
gatives when hardened faeces are collected in the intestines as it he-
lenates the mucus and softens the scybala. Oil united to sal-
sola makes soap. Soda was the name formerly for heartburn
and the remedy used for that complaint has the name of the
complaint itself.



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